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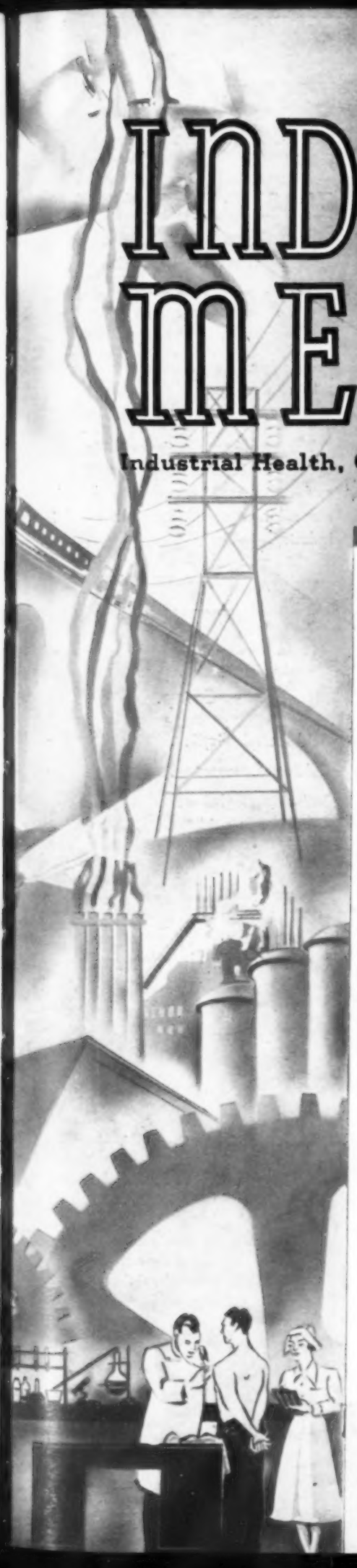

INDUSTRIAL MEDICINE

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Industrial Health, Occupational Diseases and Traumatic Surgery

February, 1943

War Conference
—Industrial Physicians and Hygienists at Rochester in May—

Psychology and Industrial Nutrition Programs
— Food in Relation to Mental Processes —

Medical First Aid
— In Common Types of Accidents —

Labor's Attitude
— On Industrial Health Measures —

Reduced Temperature Anesthesia
— For Surgery of Trauma —

Foot Symptoms
— Instruction and Exercises for Their Relief —

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Volume 12 Number 2

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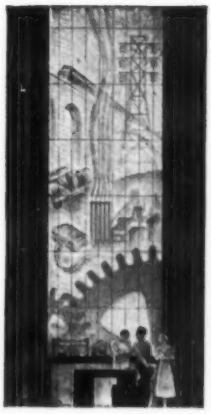

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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War Conference

American Association of Industrial Physicians and Surgeons
(Twenty-Eighth Annual Meeting)
American Industrial Hygiene Association
(Fifth Annual Meeting)
National Conference of Governmental Hygienists
(Sixth Annual Meeting)
In May, 1943 **Rochester, New York.**

DR. SELLING'S treatment of nutrition in industry (page 69) is by way of a new approach. Most discussions of comparable studiousness have dealt with the physical and chemical aspects of the problem—some with a smattering of information regarding personal reactions and food habits, many from a basis too academic for such individual considerations. Here is a different, an interesting, and an increasingly important angle. . . . DR. CARLISLE'*s* "Medical First Aid in Common Types of Accidents" (page 73) has more real substance than is usually packed into a single article. It is the text of his lecture at Long Island College of Medicine's Post-Graduate Course in Industrial Medicine last November. It bespeaks the happy result when wisdom and experience adapt themselves to instruction. . . . MR. HOLLANDER presents "Labor's Attitude on Industrial Health Measures" (page 77) with refreshing candor. Also a part of Long Island College's Course, it had its place in the complete coverage of industrial medicine given there; its publication here reminds of labor's place in industrial health plans now being made or contemplated. . . . DRS. DZIOB and BROWN, in their "Reduced Temperature Anesthesia for Surgery of Trauma" (page 79), describe a method which, if uncommon, was practical and effective in the use they made of it. . . . DR. RIZZO'S "Foot Symptoms" (page 80) emphasizes the often-overlooked intimacy between feet and fatigue. . . . DR. SAPPINGTON'S digest of the fifth annual Congress on Industrial Health condenses its "whale of a program" into a panorama of major significances. The Congress presentations held pretty well to the level of information most useful to general practitioners, defining problems and identifying their respective importances in the industrial health picture. It represented the interest and con-

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cern of those who best realize the part the general practitioners can play — indeed, must play — in the wider application of the principles of industrial health to an ever-increasing number of employed people. Some of the discussions were suggestive of the acute necessity for the exercise of discrimination and good judgment in industrial medical matters, particularly with reference to the social implications of what was said. The papers and, it is hoped, the discussions are to be published in the *J.A.M.A.* . . . "WAR CONFERENCE" heads the important announcement (page 98) that the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, and the NATIONAL CONFERENCE OF GOVERNMENTAL HYGIENISTS are meeting together at Rochester, New York, next May. Theirs will be a four-day session. The purpose of this War Conference rates priority; its importance is only exceeded by the importance—in innumerable respects of the problems of war production—of the subjects that will be discussed. In industrial medicine and hygiene *this* year all roads lead to Rochester. . . . DR. LEGGO's "Cutting Oils and the Skin" (page 102) is written for the industrial physician to distribute rather than to study. Purposely nontechnical, it covers the subject in the comprehensive and readable manner that will appeal to those who are using the oils, giving them the kind of explanation they can understand. If experience with similar explantions of other more or less technical subjects is any criterion, this article will be very well received. Reprints will be available. . . . DR. LONG's "Women at Work" (page 109), credited to Metropolitan Life's *Executive Service Bulletin*, disposes very sensibly of a matter which "will embarrass all concerned unless it is settled promptly once and for all." . . . COMMENT AND OPINION this month reflects the fact that industrial medical and related subjects are getting into print in many kinds of publications. Articles are abstracted (not always understandingly) and speakers are quoted (not always correctly) where, even a few years ago, the general subject, not to mention its details, was merely a possible development on the shadowy fringe of the future. Technical, business and current-events magazines are discovering that industrial health is fitting their reader interest; newspapers are finding it news. The excerpts, paragraphs, high points and pregnant sentences assembled here to the extent of all available space, are evidence of industry-wide and country-wide recognition — gratifying, even if belated. Some of the general publicity, no doubt, stems from the outspoken interest of government boards and bureaus in such phases of the subject as accidents and absenteeism. This particular interest has various unsatisfactory implications, as to which more in a subsequent issue. Suffice it to say now that some of the wide-eyed wonder regarding certain of the causes of absenteeism is, possibly for reasons, completely oblivious of the human equation. JOHN MCMAHON (pages 43-115) refers to the need to "preserve a sense of humor" in studying absenteeism. There is need, too, for the kind of understanding expressed by a well-known lawyer on the occasion when one of his good clients literally "beat hell" out of another. Asked by an office associate: "Why do you suppose Jim did that?" the lawyer replied: "Because he wanted to." *There's* something to consider. The essence of a good deal of staying away from work is that the workers *want* to stay away. But *why* do they want to? . . . INDUSTRIAL NURSING SUPPLEMENT (pages 117-126) will be available in reprint form. Write us if you want a copy. . . . THE restrictions on manpower, and womanpower as well, which require industrial medical departments to accommodate themselves to fewer assistants should bring into the forefront of consciousness the added help that can be obtained from more and better equipment. This is a comment that needs no elaboration. We haven't seen it mentioned elsewhere. So here it is, and it can be very profitably thought about. . . . INDUSTRIAL SURGERY seems overborne by industrial health. But it only *seems*, as in subsequent issues will presently appear; accidents as well as absenteeisms are on the increase. . . . WAR CONFERENCE, at Rochester, New York, in May, this year!

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PERSONAL

DR. TOM F. BEVERIDGE, of Chicago, has become associated with the medical department of Chicago Rapid Transit, as assistant surgeon, under DR. HART E. FISHER, head of the department.

DRS. GEORGE E. MORRIS and IRVING R. TABERSHAW, of Massachusetts' Division of Occupational Hygiene, in *J.A.M.A.*, January 16, 1943, describe a new cleansing mixture for the prevention of "cable rash" or "Halowax dermatitis."

WESTINGHOUSE Electric & Mfg. Co. is distributing a series of eight leaflets on tuberculosis to its workers and their families. DR. T. LYLE HAZLETT, medical director, explains that the leaflets, "Tell what tuberculosis is, how it spreads, symptoms that require prompt medical attention, how to avoid infection, and how the disease is treated."

FEATURES of the Illinois State Medical Society's Post-Graduate Conference, at Mt. Vernon, Illinois, October 8, 1942, were the following (published in full in *Illinois M. J.*, January, 1943): "The Treatment of Soft Tissue Injuries," by DR. FREDERICK W. SLOBE; "Management of Burns," by DR. BRYCE B. REEVE; and "Minimum Fracture Requirements," by DR. JAMES J. CALLAHAN, all of Chicago. DR. CALLAHAN'S paper was also presented at Peoria, October 22.

DR. WALTER E. DOYLE, director, Kentucky's Bureau of Industrial Hygiene, reports labor-management committees on industrial health now established in 63 industries throughout the state. "This is an increase from seven such committees on October 9. Kentucky is a pioneer in this type of work, which is aimed to improve efficiency through betterment of workers' health and prevention of accidents."

PUBLIC Health Reports, Vol. 58, No. 2, January 8, 1943, contains "Industrial Health Activities by State Agencies," (being chapter 8 of the third edition of Public Health Bulletin No. 184), by JOSEPH W. MOUNTIN, assistant Surgeon General, and EVELYN FLOOK, U. S. Public Health Service. The opening paragraph: "Until rather recently, management, society-at-large, and, in fact, workers themselves accepted rather complacently the hazards of industrial employment. Development of concern for the health of employees stems, in

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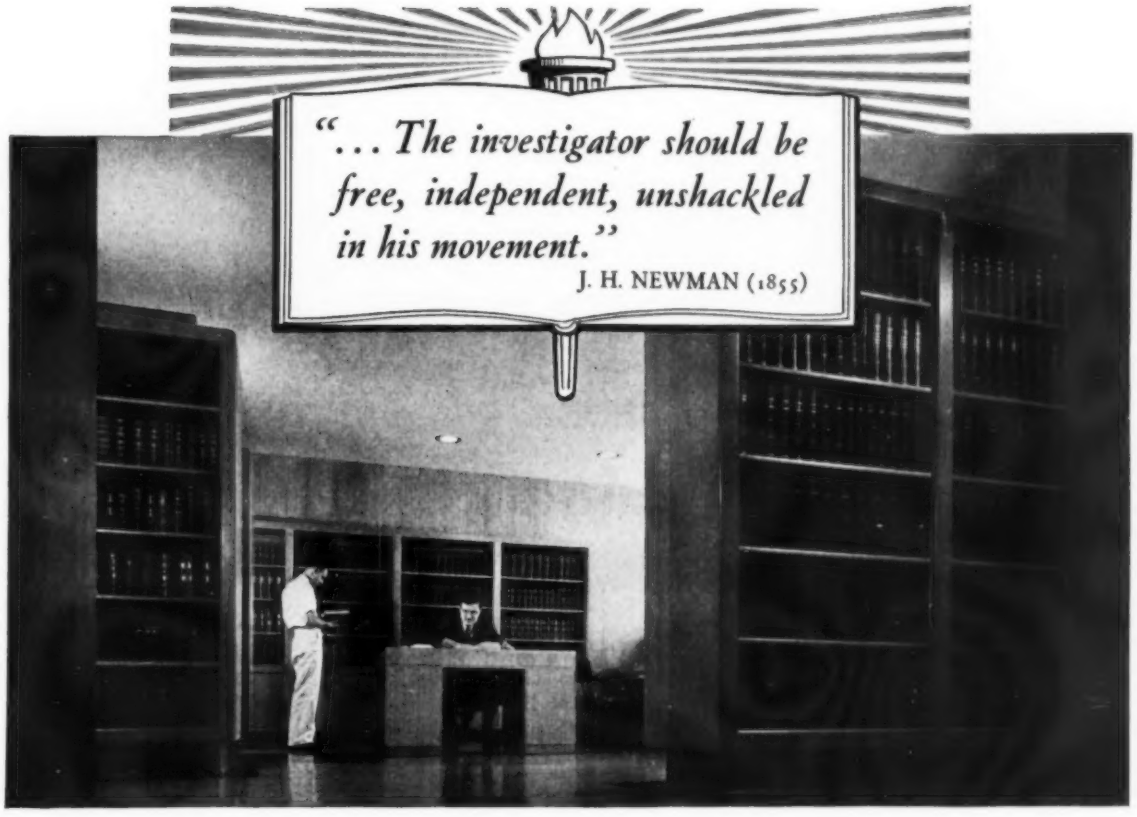

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2% OINTMENT in a soothing Special Absorption base is rapidly and completely absorbed. Does not leave a dry, cracked surface or cause bandages to adhere. Will absorb considerably in excess of its own weight in water. 1 ounce, 2 ounce and 14 ounce jars.

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medical department. Lectures and demonstrations included dust hazards, lead and metal poisonings, industrial dermatoses, the problem of women in industry, industrial absenteeism, prevention of accidents, and safety measures.

DR. HARRY S. GRADLE, Chicago, declares (in *J.A.M.A.*) that acute trachoma, a contagious granular inflammation of the membrane that lines the eyelids and covers the eyeball, can be treated so successfully that less than 1% of the eyes infected will become industrially blind. His report, on the visual results obtained in the trachoma clinics of southern Illinois, lists the results from treating two groups of patients in stages 1 and 2 of the disease, 328 eyes in one group being treated with sulfanilamide and 493 eyes in the other group being treated by other means. "From the final visual standpoint," he says, "systematic treatment with sulfanilamide is preferable to purely local treatment because: (a) twice as many eyes show definite improvement in vision and (b) less than half as many eyes show positive losses in vision."

—Note in *Nebraska State M. J.*, December.

THE plant of Max Udell Sons & Co., manufacturer of men's clothing, was visited this week by DR. FREDERICK B. FLINN, director of industrial hygiene at the Delmar Institute of Public Health, College of Physicians and Surgeons at Columbia University and 25 members of his class. The group, which included two U. S. Army officers, was first given a brief resumé of the health education and accident program carried out by the company under the direction of MISS S. E. SANDERSON, R.N. This program was put into effect some time ago by the company in compliance with the U. S. government war program looking toward the lessening of industrial accidents. Following the lecture and discussion the group was taken on a tour of inspection of the entire four floors of the plant.

—*Daily News Record, N. Y. C.*, November 27, 1942.

MRS. ANNA M. ROSENBERG, regional director of the War Manpower commission, made a report based on a study of eight large plants with 40,000 men and women on their payrolls, the industries including radio equipment, food products, foundry castings, airplane accessories, air compressors and electric power; found that sickness was the chief cause of absenteeism; also listed personal reasons other than illness —indicated in pronounced increase in absences immediately following payday. Failure to report for work in that period was especially heavy in some plants.

—*Niagara Falls Gazette.*

GENERAL

KENTUCKY Bureau of Industrial Hygiene advises that reporting of occupational diseases is now required by law in that state. Thirty-four of them are included in a list of diseases "declared dangerous to the public health."

ARIZONA, Michigan, Nevada, Ohio and Wyoming have appointed committees to study and recommend legislation for occupational disease compensation.

FREEMAN Coal Mining Corporation, operating mines near Herrin, Illinois, recently concluded arrangements with Vitamins Industrial, Chicago, for the regular distribution of multi-vitamin tablets among all its 600 miners.

A TWO-DAY symposium on industrial medicine will be held in Indianapolis in February as a "test program" for the A.M.A. and the Procurement and Assignment Service in their desire to train physicians for industry.

MICHIGAN Industrial Hygiene Society will hold the following meetings: East Lansing, February 24: MRS. MARGARET T. METTERT, Women's Bureau, U. S. Department of Labor, and MISS IVA WAIT, A. C. Spark Plug Division, General Motors: "Women in Industry." Detroit, March: W. P. YANT, Mine Safety Appliances Company: "Industrial Hygiene in England."

THE 1942 Year Book of Industrial and Orthopedic Surgery, edited by Dr. Charles F. Painter, is thus described in the publisher's circular: "Full details of 75 new or improved operative and other therapeutic procedures, 53 new diagnostic advances, and 38 key contributions on industrial medicine applicable to 116

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COSTS NO MORE!

Size	Dozen	Gross, per Doz.
2" x 3 yds.	$1.75	$1.66
3" x 3 yds.	2.10	2.00
4" x 5 yds.	2.80	2.66
5" x 5 yds.	3.35	3.18
6" x 5 yds.	3.80	3.61

See how easily this MAJOR cast can be removed . . .

Before the Major cast has completely set, it is scored with a knife to a depth of 1/16 inch.

When ready to remove, hot water from a hypodermic syringe is run along the groove, disintegrating the plaster. This leaves only the crinoline, cut with scissors.

This method of bivalving leaves a neater edge, destroying none of the cast. Major casts may also be removed by conventional methods.

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Industrial Division

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disease conditions are brought up-to-date in this Year Book. The working essence of the year's 223 outstanding papers critically selected by the editor from 87 scientific publications of our own and 15 other countries."

SCOVILL MFG. CO., Waterbury, Connecticut, staged a "First Aid Show," in December. The program included talks by ALLAN CURTISS, Scovill's director of employee relations, and DR. RICHARD HINCHEY, plant industrial surgeon and hygienist, who discussed "Employee Hygiene in Industry." The first aid team staged a demonstration of improved first aid methods, including cravat applications and splint hitches for traction. Two movies, "Before the Doctor Comes," and "Connecticut Flights" were shown.

RECENTLY, the director of a state bureau of industrial hygiene informed us of a plant which has received an Army-Navy "E" award. Yet, in the words of the director, "This plant has no physical examination program of any kind, no nurse, and a first aid room that would be a disgrace to any civilized community." A communication from the Division of Industrial Hygiene to the War Production Drive Headquarters brought prompt response. The Production Award Committee has informed the Division that, in the future, provisions for the health conservation of workers will be considered where an award is proposed.

—*Industrial Hygiene.*

CONTRACT between the Empire Ordnance Corporation and the United Electrical, Radio and Machine Workers' Union provides for two vitamin pills per day per employee.

—Princeton University Industrial Relations Section's digest of "Pills in the Contract," in *Business Week.*

A PROGRAM for the Conservation of Manpower designed to reach management, labor, and the medical profession, will be presented in four Georgia cities in March, 1943. The program will consist of one-day conferences in Augusta, Savannah, Atlanta, and Columbus. Nine speakers at each conference will cover all phases of industrial hygiene. The program is sponsored by Georgia State Medical Association, Georgia Manufacturers Association, and Georgia State Department of Health.

TIME (January 25) tells of made-to-measure ear mufflers of smooth plastic. An impression of the outer folds and canal entrance is taken, and a polished plastic plug made therefrom. This plug extends into the auditory canal, is easily inserted with a twisting motion, cannot be pushed in too far, and is locked in placed by a lip which fits over the helix. There is sufficient leeway to equalize air pressures.

NEWARK nurses were made available this year from the Board of Health staff to advise plant operators on the type of nursing set-up best suited to each establishment, on separate equipment for dispensaries, and other such practical industrial health matters. Free to Newark industry are periodic fluoroscopic and x-ray examinations, Wassermann tests and general physical check-ups of employees. Test results are confidential between doctor and employee, but the knowledge of defects is quickening their correction.

—*Newark, N. J., News.*

DR. GEORGE BAEHR, of the U. S. Public Health Service, and Chief of the Medical Division, Office of Civilian Defense, warns, with thousands of doctors and nurses already in the armed services and more leaving every day, the "luxury" medical attention to which Americans have been accustomed will be eliminated. Some of the luxuries: full-time attention, in a hospital, of one or two private nurses, if the nature of the illness is such that the nurse can attend other patients in nearby rooms; going to a hospital just for a "rest" or for clinical diagnosis that could be made by visits to doctors' offices; calling a doctor to the home when the patient could be taken safely to the doctor's office or treated by someone in the house following telephone instructions. Suggestions for rationing available medical service: (1) call on the doctor at times when those who must work specified hours

MUSCLE FATIGUE SLOWS DOWN PRODUCTION!

Help him stay on the job. Application of a Johnson's Red Cross Plaster to the painful part may afford relief in the common forms of muscular aches and pain. The beneficial effects of this time-honored medicated plaster are attributed to warmth, anodyne effect, physical support and passive massage. Quick and easy to apply. Eliminates the inconvenience of ointments or liniments. The next time you get a complaint use this approved treatment.

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Prevent Contamination of Wounds and Burns

Water, the chief constituent of tissues, conveys all material to those tissues. Water now carries a more soluble form of sulfonamide to inhibit bacteria in contaminated wounds, and burns, and in purulent skin diseases such as impetigo. This new and improved aid to industrial physicians consists of sulfathiazole-sodium 5% in a jelly vehicle. It is known as

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Concentrated at the site of accessible local infections, repeated applications of Sulthigel may be made to maintain bacteriostatic action, yet the amount of drug in the blood stream remains surprisingly low.

"Certainly, at the present time, there is no reason to consider any other local antiseptic treatment until sulfathiazole has been given an adequate trial."—Green and Parkin of Sheffield, England, in the Lancet (August 22, 1942).

Write for more information about Sulthigel; supplied in 4 oz. and 1 lb. glass jars.

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are not calling; (2) do as much of the consulting with the family doctor as possible over the telephone; (3) don't expect the doctor the minute he is called; (4) help educate people to do some things for themselves; and (5) don't demand or expect luxury services.

—OWI Release.

SINCE Pearl Harbor more Americans have been lost to the war effort through accidents on the home front than have been killed, wounded or captured in military and naval operations. Announced casualties in the United States armed forces since Pearl Harbor have totalled 58,307 including those missing. Casualties to American workers through on and off-the-job accidents in the same period have numbered 46,300 dead, 4,000,000 injured.

—OWI Release.

DENTAL statistics collected in connection with pre-employment examinations in a Kansas Ordnance Plant show that 41 persons, or 11.5%, of the 357 examined had "excellent" teeth, 215, or 60.2%, had "good to fair" teeth, while 101, or 28.3%, had "bad" teeth. According to DR. L. R. KRAMER, Director of the Division of Dental Hygiene, Kansas State Board of Health, these findings were made by DR. J. W. SPEARING, staff physician at the plant, and published in *Vox-Kop*, Kansas, Ordnance Plant publication. Those with teeth in complete number or in excellent repair were given the "excellent" rating. The mouths where there were teeth with large cavities and/or two or more teeth missing were given a "good to fair" rating, and those with (unsanitary) bridgework, no teeth at all, or with bleeding suppurating gums, were given a "bad" rating. While a dentist might question classifying as "good to fair" any mouth in which large cavities are found in the teeth, and while dental examinations made with explorer, x-ray, and mouth mirror show few mouths free from dental defects, yet the physician making these examinations is doing a good piece of work by calling attention to the need for dental care as a means of protecting and improving the general health.

—*Industrial Hygiene.*

TO TRAIN physicians needed for replacements in industrial medicine, Michigan is developing a practical three weeks' training program, to be given in Lansing. The first week's work will cover preventive aspects; the second, field work, visits to industrial plants to investigate occupational hazards and their control; the third, observation of working methods in full-time medical departments. Such a course, it is believed, will appeal particularly to those interested in administration, toxicology and preventive medicine. No charge is made for instruction, but physicians will, of course, pay their own living expenses. The training will be given and supervised by the Bureau of Industrial Hygiene of the Michigan Health Department. Cooperating agencies are the Procurement and Assignment Service, Social Security Agency, A.M.A. and Michigan State Medical Society.

PENNSYLVANIA county medical societies are urged to present during February a program on industrial hygiene which has been endorsed by the state medical society. In order that there may be complete uniformity of presentation the commission on industrial health and hygiene of the society will furnish texts of papers to be presented. The subjects will cover objectives of organized medicine in industrial health and hygiene, medical and non-medical problems in the field and methods necessary to attain described objectives. The commission urges the societies to present this material, no matter what other commitments are planned.

DR. BARNEY J. HEIN, of Toledo, chairman of Ohio State Medical Association's new committee on industrial health, announces a statewide program "to encourage every plant in Ohio, regardless of its size, to develop in cooperation with the local medical society a sound industrial health program. . . . to encourage workers to take more interest in their physical welfare while off the job and to advise them how to improve conditions which are de-

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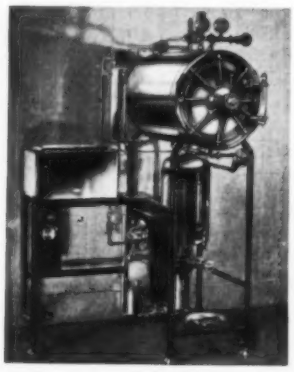
Are your Sterilizers up-to-date? Have they ample capacity for today's job? Are they efficient? Completely safe? How about operating lights? A really good light speeds the Doctor's work.

CASTLE 669 *(Illustrated above with water sterilizer)*
Has 8" x 16" autoclave with CAST-IN-BRONZE construction. Entire body, ends and base cast in one piece of lifetime bronze. Recessed 16" CAST-IN-BRONZE Instrument Sterilizer with silent oil-check foot lift. 9" x 20" black porcelain finished table top. Spacious double cabinet with plate glass doors and shelves. "Full-Automatic" throughout.

CASUALTIES on the production line today can be as costly as casualties in the field.

The responsibility of preventing any production let-down is in your hands. With plant personnel doubled or tripled, your present equipment may not be adequate for the job. Under any conditions, the chances are that you have a definite need for Castle Industrial Sterilizing Equipment and for Castle Lights.

Wire us the approximate number of cases handled daily by your First Aid Department. Let us recommend adequate equipment. We can make good deliveries on high priority orders.



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CASTLE 1150
Combines 16" x 20" Pressure Dressing and Utensil Sterilizer, 3 gal. Pressure Water Sterilizer, 3 qt. Water Still, and 17" Instrument Sterilizer with foot pad lift. Affords full hospital sterilization in one compact, efficient unit.

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Castle No. 1 Spotlight provides ample, cool, color-corrected, glareless, shadow-free light wherever it is needed most. Although operator's head may be held directly in front of light, a complete spot of illumination will still be projected. Unexcelled for locating foreign bodies in the eye. Completely adjustable, on tripod caster base or wall mounting. Other Castle Lights include Major Operating Lights. Lights for Improved Over-All Illumination and Emergency Power Units.

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Elastic adhesive conformance dressings get them back faster....

THE value of occlusive dressings to promote quick healing of wounds in industrial work has long been recognized—but in many instances, it has been difficult or impossible to employ this type of dressing without immobilizing the patient.

Ace Adhesive-Elastic Bandages, however, combine a skin-tested adhesive mass *and* the elasticity of regular Ace Bandages. This makes it possible to apply occlusive, supportive dressings, even directly over joints—without seriously impairing the efficiency of the worker. In this way quick healing may be effected with a minimum loss of working time.

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trimental to health, such as bad housing, poor nutrition and unhealthful use of leisure time. . . . and . . . . to help keep practicing physicians informed about the newest developments in the prevention and treatment of occupational diseases and industrial injuries. The committee will sponsor special institutes on industrial health and will encourage discussion of the subject at county medical society meetings and in medical publications. It will also urge expansion of facilities for teaching industrial medicine and health to medical students. Besides these educational efforts, the plan calls for the establishment, by county medical societies, of local committees on industrial health to carry on activities recommended by the state committee. In certain communities, notably Cleveland and Cincinnati, where this has already been done, the state plan will serve to augment their work. After the local medical societies have organized their committees, they will be requested to hold conferences with employers, employees, public health officials and various groups and agencies interested in this important undertaking for the purpose of securing advice and suggestions and winning their active support."

A NEW specialized course in industrial hygiene for nurses is being offered by Indiana university extension center. The classes meeting each Wednesday from 7:00 to 9:00 P.M., are open to graduate nurses and are conducted by MISS FRANCES ORGAIN, assistant professor of nursing at Indiana university. MISS ORGAIN is aided by DR. LOUIS SPOLYAR, chief of the bureau of industrial hygiene of the state health board; JOHN DILLON, itinerant teacher trainer for the distributive occupations at I. U.; JOHN W. KIRKPATRICK, industrial engineer, RUTH SCOTT, consultant, state health board, and DR. BEATRICE GEIGER, head of the I. U. home economics department. Topics discussed in the course include development of industrial hygiene, present picture and trends in industrial hygiene, industrial legislation, industrial administration and relations, engineering aspects of occupational disease control, nursing functions in industry, diet and nutrition, methods of teaching nutrition in industry, methods of teaching safety education, medical aspects of occupational disease control, health service in industry, use of non-official community organizations, use of official community organizations, and the American family.

RESEARCH Council on Problems of Alcohol is an associated society of the American Association for the Advancement of Science. Among the members of its Scientific Committee well known to readers of INDUSTRIAL MEDICINE are CASSIUS H. WATSON, M.D., J. M. CARLISLE, M.D., LEONARD GREENBURG, M.D., H. B. HAAG, M.D., HOWARD W. HAGGARD, M.D., A. C. IVY, M.D., and E. M. JELLINEK, SC.D. The Council announces a $1,000 award for outstanding research on alcoholism during 1943. The research must contribute new knowledge, in some branch of medicine, biology, or sociology, important to the understanding or prevention or treatment of alcoholism. Any scientist in U. S., Canada, or Latin America is eligible for the award. For details, address The Director, Pondfield Road West, Bronxville, New York. The Council's present program is focused on alcoholism and the alcoholic psychoses.

AN EMERGENCY educational program in industrial health has been prepared by the Industrial Health Committee of the Indiana State Medical Association, with the aid of the Council on Industrial Health of the American Medical Association, the Indiana University School of Medicine, the Bureau of Industrial Hygiene of the Indiana State Board of Health, the Indiana State Chamber of Commerce, and the Indiana Procurement and Assignment Service. The plan is twofold in purpose. First, it will enable the State Committees on Procurement and Assignment, and on Industrial Health to assist industry in solving its medical procurement problem. Second, it will train overage physicians and those found ineligible for military service for employment in the medical departments of war industries. Two types of educational courses are proposed. An extremely short but intensive course given by nationally known men will be open to all industrial physicians. This is intended to serve as a refresher course for part-time physicians. There will also be a three-

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1. Quick and marked alleviation of pain
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Moreover, in deep seated burns of the face, hands, feet and joints, Foille largely eliminates scarring contractures and encourages normal restoration of manual function.

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THIAZOINT
10% SULFATHIAZOLE OINTMENT (HART)
A valuable aid in controlling pyogenic infection in wounds and minor surgery. Useful as an adjunct to the usual surgical procedures in: Contaminated and Acutely Infected Superficial Wounds and Burns; Boils and Carbuncles; Varicose, Diabetic and Decubitus Ulcers.
Supplied in 1-oz., 1-lb. and 5-lb. jars.

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SULFATHIAZOLE-CALAMINE CREAM (HART)
A greaseless cream which dries rapidly and forms an adherent, slightly astringent film. For the treatment of Impetigo and Other Superficial Skin Infections of Coccal Origin.
Supplied in 1-oz., and 1-lb. jars.

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COD LIVER OIL OINTMENT (HART)
Stimulates epithelization and promotes healing with minimum scar formation. Valuable in the treatment of Burns, Wounds, Abrasions and Varicose Diabetic and Decubitus Ulcers. An excellent means of applying U.S.P. Cod Liver Oil without its unpleasant features.
Supplied in 1-oz. tubes and 1-lb. and 5-lb. jars.

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HART NASAL JELLY
The original water soluble Ephedrine Nasal Jelly. Relieves nasal congestion promptly and peasantly. Particularly convenient for ambulant patients.
Supplied in nasal tipped tubes.

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weeks' course to train physicians individually or in small groups whenever industry requests this service. This course includes one week of lectures on administrative aspects of industrial hygiene, industrial hygiene and toxicology, and traumatic surgery; a week of field studies with the State Bureau of Industrial Hygiene; and assignment for a week to plants doing comparable work in well established plant medical departments.

AMERICAN Standards Association has recently published an American War Standard for the allowable concentration of manganese (Z. 37.6-1942) which was approved July 16, 1942. The maximum allowable concentration of manganese dust and fumes in the atmosphere of any working place shall not be greater than 60 milligrams of manganese per 10 cubic meters of air. Sampling procedure and analytical methods are described.

COMMENT and OPINION

INADEQUATE morale"—latest characterization of absenteeism, in a round-table broadcast entitled "Behind the Labor Crisis," January 24, 1942.

WHY do most injuries become complicated by sacro-iliac sprain when suit is filed,
—*J. Kansas M. Soc.*

INDUSTRY and insurance carriers must take medical service off the bargain counter. Private doctors and public health services must learn to work in double harness for the good of the war worker.
—DR. STANLEY J. SEEGER, quoted in *Chicago Times*, January 11.

LABOR unions can do a great deal to correct habits of eating for better nutrition among industrial workers, and the government is ready to help them do it.
—DR. ROBERT S. GOODHART, quoted in *Chicago Times*, January 13.

NO MATTER how silly the reasons advanced by a war worker for his absence from the job, industrial plants and health officers must consider them seriously. As an example, a war plant set up a beauty shop on the premises and found that "absenteeism of new women employees was cut to practically nothing."
—CHARLES P. TAFT, quoted in *Chicago Times*, January 11.

METHODS of preventing colds have been directed along several lines and it can be said that none of them is effective. We are forced to the unhappy conclusion that at present there are no effective methods available for the prevention of the common cold. Every effort should be made to practice hygienic measures, such as washing the hands before meals and avoidance of persons who have colds. Supplying extra vitamins to the person who shows no sign of deficiency does not protect him against respiratory infections, including colds.
—DR. CHESTER S. KEEFER, quoted in *Spartanburg (S. C.) Herald*, January 16.

IN THE meantime, Doctor Keefer recommends vitamins on general principles. They may not prevent a person catching cold, but they do correct "deficiency states which predispose to infection." To sum up: Build up the body and hope for the best.
—*Willimantic (Conn.) Chronicle.*

ONE attempting to interest himself in the subject of industrial health is likely to be left in a daze because of the many ramifications of the subject.
—From a recent editorial in *Minnesota Med.*

IT SHOULD also be remembered that there are many skin troubles which do not result from one's work. For example, some persons are susceptible to various plants, chemicals, soaps, foods, dusts, and other substances entirely apart from industry. In these cases the lesions may be similar in appearance and location to those of occupational origin, and only the most careful consideration of all the facts by a dermatologist or a physician with a good working knowledge of dermatology can lead to the determination of the correct cause.
—From "Industrial Disease Prevention in the Leather Tanning and Related Industries," by E. G. MEITER, PH.D., in *Leather Manufacturing*, December.

THE Procurement and Assignment Service was created by the President of the United States and charged with consideration of the task of meeting the needs for physicians of the armed forces, industry and the civilian population. It has approached the problem scientifically, with accurate inventories of physicians available and needed and with due regard for the health of all the people of the United States. At the same time the concept that the winning of the war must be our first objective has not been overlooked. Actually what has been done in relationship to medical services might well serve as a model for the other activities of the War Manpower Commission.
—Editorial *J.A.M.A.*

IN THE Pittsburgh area some remarkable efforts are being made to control and prevent injuries to health. Westinghouse Electric & Manufacturing Co. has a card index system on which it records the characteristics of thousands of toxic materials used in its plants. Through this system information to safeguard health is transmitted from the hygiene laboratory to shop supervisors and workers. Other examples of extreme modernity, from an hygenic standpoint, are the nearly smokeless and dustless Irvin Works of

They called it an accident

But it was no "accident" that Joe was tired that day . . . that his vision blurred . . . his hands trembled into fatal error. For back of his fatigue—his seeming carelessness—lay a long history of faulty food habits.

Malnutrition . . . Fifth Columnist

Joe's case is not exceptional. National Research Council surveys[1] show that nearly three-fourths of our war workers are living on inadequate diets—diets seriously deficient in vitamins and minerals. One of America's most important nutritional authorities calls malnutrition a Fifth Columnist—an important underlying cause of lowered production capacity, absentee illness, and industrial accidents.

Industry's New Answer..Dietary Supplementation

A reliable dietary supplement may be the one way to *make sure* your workers get all the vitamins and minerals they may need to keep fit. Plants and offices that have tried this method report less time lost, fewer colds, less fatigue, and improved efficiency.

IN RECOMMENDING a dietary supplement, many doctors prefer Vimms. Here's why:

1. Deficiencies of a single vitamin alone seldom occur. And Vimms provide *all six* essential vitamins—and the three minerals most commonly lacking in the average diet.
2. Minimum daily requirements have been established by the government for all six vitamins.[2] Vimms *meet* or *exceed* these requirements (see chart).
3. The American Medical Association has recommended the proper ratios for compounding multi-vitamin supplements.[3] Vimms are correctly *balanced* in these ratios.

FOR YOUR WORKERS Vimms offer special advantages. They are palatable, pleasant to swallow or chew. And they cost little (50¢ for 24 tablets; $1.75 for 96; $5.00 for 288). But most important of all, three Vimms a day will *make up any difference* between what your average worker gets in his regular meals and the vitamin-mineral levels (recommended daily allowances of National Research Council) he should attain for top-notch working efficiency and vigorous health.

If you wish clinical samples of Vimms, please write Lever Brothers Co., Dept. IM-4, Pharmaceutical Division, Cambridge, Mass. (Offer good in U.S.A. only.)

VIMMS MEET OR EXCEED MEDICAL RECOMMENDATIONS*

Medical recommendations are based on these Gov't standards	VITAMIN	See how 3 Vimms meet or exceed these standards
4,000 USP Units	A	5,000 USP Units
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In addition, Vimms supply these vital minerals:

CALCIUM	375 Milligrams
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IRON	10 Milligrams

*Jour. of the A. M. A., July 18, 1942, pp. 948-9

[1]The Food and Nutrition of Industrial Workers in Wartime
[2]Food and Drug Administration [3]Jour. of the A. M. A., July 18, 1942, pp. 948-9

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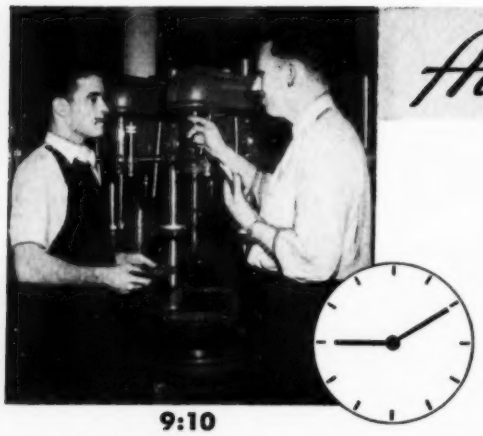

9:10
Subject notified to report for x-ray

9:14
Radiographic exposure is made

9:17
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Carnegie-Illinois Steel Co.; the Aluminum Co. of America plants where eye injuries have been reduced to zero due to mandatory wearing of goggles by all who enter the factory; Allegheny-Ludlum Steel Co.'s distilled water for all workers. These are but a few instances of what some of the larger firms are doing to protect the health of workers.

—ROBERT LAFFAN, in *New York Wall St. Journal.*

Too many of our all-important industrial workers are inadequately fed, said DR. ROBERT GOODHART, of the U. S. Public Health Service. He spoke of a pending recommendation that industrial workers, and those expecting to enter this field, be "conditioned nutritionally." He pointed to the success in Great Britain of a similar plan which applied to men rejected by the Army. On a good diet and good living routine, 87% of these men were reconditioned and accepted. Since studies made in numerous industrial communities in the U. S. have shown marked dietary deficiencies in workers' diets, the need for such a program would seem apparent.

—From "Notes on the Dietetic Convention," *Trained Nurse & Hospital Review*, January.

DR. BORSOOK apparently believes that in many war industries conditions are such that attempts to supply adequate meals would mean a serious degree of interference with production. He is therefore sympathetic with the widespread administration of synthetic vitamins and vitamin concentrates to industrial workers. He asks also for more, well controlled studies on the effects of such administration on the health and efficiency of the worker. It is believed by most leaders in the field of nutrition that natural foodstuffs must form the basis for good nutrition, and Dr. Borsook would probably agree with that thesis. In the great majority of instances it is possible to work out methods for feeding workmen within the plant, without causing serious interference with production; in fact production can be expected to improve. The decision to utilize synthetic vitamins and vitamin concentrates should be taken, in any instance, only after other possibilities have been fully explored and found wanting.

From a critique, in *Nutrition Reviews*, January, 1943, on DR. BORSOOK'S recent article in *Am. J. Pub. Health.*

AS A PEOPLE we have been told we eat too much for our own good. But the stark reality is that *we cannot eat less of present foods without becoming unnourished and sick!* As our food intake is cut down, our intake of the catalysts of life—the vital elements of nutrition—goes down in direct proportion. We can stand less calories, perhaps, but we cannot stand less vitamins, minerals and amino acids! . . . The scaling down of food intake is as vital as it is historic. We are reminded of Samuel Pepys who relates in his famous diary that he sat down to a quiet dinner at home with Mrs. Pepys—just a light repast—but *enough to stuff an ox today.* They got their vitamins and minerals—the hard way. As eating and foods have become more refined, the incidence of nutritional disease has steadily increased. The toll of lives has gone up and up. One authority said recently: "As new vitamins are found, so are new deficiencies in food, and nutrition becomes part of preventive medicine." In other words, every food manufacturer from here on has a stake in preventive medicine. He is a dispenser of preventive medicine—directly competitive with the drug and pharmaceutical industries!

—From "Foods without Calories," by A. ADAMS LUND, in *Food Materials and Equipment.*

USED cutting emulsions, unless sterilized, usually teem with bacteria. We have frequently found bacterial counts as high as 300 million per cubic centimeter. Where bacteria grow in emulsions, the solution becomes foul and malodorous, and from then on, workers will charge it with causing everything from chilblains to athlete's foot. According to reports, a great many different types of disease-producing organisms have been found growing prolifically in such emulsions, which

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Today, more and more women man factories, mills, offices . . . many of them unaccustomed to the strain of industrial jobs. Result: fatigue, too frequent "rests", slowed production, "absenteeism" . . . much of it traceable to poor body mechanics.

In the *relief of certain types* of workers' fatigue, Camp Supports play an increasingly important role. For these supports are *designed along anatomical lines;* they lessen back strain and protect against sprain.

It is a matter of medical record that these supports have—for 30 years—successfully aided men and women to achieve better posture . . . hence to feel more fit . . . do more work with less fatigue.

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INDUSTRIAL DERMATITIS...

"The Greatest Cause of Man-Hour Loss"

"There is more time lost from work on account of occupational dermatitis than from any other occupational disease."* Though not serious, occupational dermatoses constitute a problem, since they undermine efficiency for long periods and produce much absenteeism.

The intense, annoying itching of these skin eruptions in no small measure contributes to lowered productivity. For the control of the distracting discomfort, the antipruritic influence of Calmitol is specific. Its prompt action produces instant relief, and for prolonged periods. Scratching is virtually obviated, thus reducing spread and the threat of secondary infection. For industrial infirmaries and hospitals, Calmitol Ointment is available in economical 1 lb. jars.

Calmitol exerts its antipruritic influence by blocking cutaneous receptor organs and nerve endings. Its active ingredients are chlor-iodocamphoric aldehyde, levo-hyoscine oleinate, and menthol, incorporated in an alcohol-chloroform-ether vehicle. Calmitol is protective, bacteriostatic, and induces mild active hyperemia.

*Schwartz, Louis: Protective Methods for the Prevention of Industrial Dermatoses, New York State J. Med., 42: 1525-1528 (Aug. 15) 1942.

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create health hazards of various kinds. For example, staphylococci have often been reported in coolants. These are the organisms that exist in pus. It is quite evident that solutions may become contaminated from workmen suffering with boils, pimples, and other similar troubles. An oil contaminated in this way might very well be dangerous to other workers.

—From "Cutting-Oil Emulsions: Health Hazards," by C. L. WEIRICH, Technical Director, C. B. Dolge Company, in *The Travelers Standard*, December.

THE industrial nurse today should be familiar with the legal standards for employment of young workers and with the philosophy which underlies these standards. She should be aware of the changing and developing nature of adolescence, and should understand the considerable variation to be expected among adolescent individuals. Finally, realizing the young worker's need for guidance and his quick response and ability to learn, the industrial nurse, under the direction of the physician, should participate actively in teaching and counselling the young worker, for the young worker of today is our most valuable raw material. He is the skilled worker of tomorrow.

—From "The Industrial Nurse and the Young Worker," by WM. M. SCHMIDT, M.D., in *Public Health Nursing*, December.

WE recently asked member companies these questions: (1) If occupational disease claims were filed against your company tomorrow, would you have dependable evidence showing the conditions to which your employees are exposed and were exposed at the time of alleged injury? (2) Have you had a complete survey made of all operations where there might be potential health hazards? (3) Are checks made periodically to determine if the health protective system is being properly operated and maintained? (4) Besides serving as a guide, to protect employee health, are the data in the form of an official record available as evidence?

—From "How Healthful is Your Plant? A Survey Will Tell," by JOHN F. McMAHON, Managing Director, Industrial Hygiene Foundation, in *Factory Management & Maintenance*, October, 1942.

SAYS ANDREW FLETCHER (St. Joseph Lead Company): "I have often been asked how a company can figure the amount of dollars lost by absenteeism. The easiest way is to compare the number of shifts lost in comparison with the number of shifts that could have been worked (i. e., number of employees times number of shifts in any week or month). If it is found that the shifts lost is, say 2.3% . . . it then follows that, if production is being maintained at about the normal level, then 2.3% extra employees are being carried on the payroll." When absenteeism is above 2%, steps should be taken to lessen the time being lost. Important among such steps is the length of the work week. "Whereas industries vary greatly, it would seem that eight hours per day and six days per week, satisfactorily fulfill most requirements."

—*Industrial Hygiene.*

THE Division of Industrial Hygiene of the Health Department of Newark, New Jersey, is one of the progressive city divisions in the country. Until recently the work consisted chiefly of controlling industrial nuisances, such as noise, smoke, and fumes. With the development of war industry, an engineer, a medical consultant, a nurse, and two additional inspectors were added to the division. At present surveys are made of all industrial plants and recommendations made to protect the health of workers. During the past year over 80% of the industries of Newark were contacted by a member of the consultant staff or an inspector. Portable fluoroscopic and cardiograph machines are taken into the plants to examine large groups for heart and chest conditions. The department has installed a complete x-ray unit for taking 3 x 5 x-ray pictures. These pictures are being made not only of food handlers and domestics, but also of as many other groups as possible. Since tuberculosis is one of the outstanding diseases spread by close contact, the influx of new workers and the resultant crowding naturally constitute a hazard. While in most large cities tuberculosis has shown an increase in mortality for the past two years, Newark at present has the lowest tuberculosis mortality rate in

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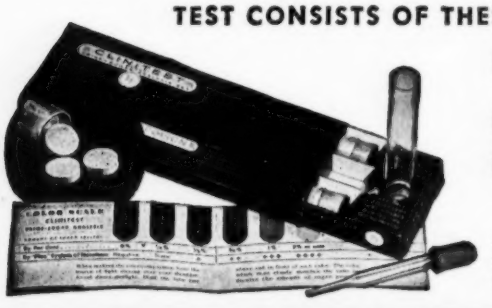

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its history—approximately 62 per 100,000 population. A regular pneumothorax clinic is a feature of its Health Department.

—*Industrial Hygiene.*

DURING the early days of the late depression, President Ernest M. Hopkins, of Dartmouth College, insisted that times of stress and change were times of opportunity for those who could foretell and foresee the trends of the future. Not only did this prove to be so, but many who set their courses, not by foreseeing the future, but by mere expediency, lived to reap the benefits of currently changing fortunes. In ordinary times, an expanding and medically minded industry would reach for a young physician—a man who could grow and mature with the business. Today, however, the opportunity is open to all. It is likely that those who have done best in private practice will do best in industrial practice, and this is fortunate because in Massachusetts the greatest opportunity lies in serving small plants, in which three-quarters of the workers of the state are employed. The medical service for these small plants is almost certain to develop as a part-time activity of the practicing physician, rather than as a full-time assignment. This circumstance also places industrial medicine where it belongs—not in the group of specialties, but in the group of activities that constitute the general practice of medicine and surgery.

—Editorial, *New England J. Med.*

WE HAVE reached the point now where prevention is the keynote of industrial practice. Surgery and treatment of injuries are becoming of diminishing relative importance as the concept of industrial health has broadened. Treatment is being looked upon as a necessary measure when prevention has failed. Lost time in industry from sickness or accidents is just as much a casualty and a detriment to the war effort as if it had occurred in battle. Those casualties incurred in fighting are inevitable, while those in industry can be prevented. The most important factor in lost time from work is that lost because of ordinary sickness, which is 15 times or more greater than that from accidents. With the shortage of manpower, industry is rapidly being compelled to make use of any and all qualities of labor, which is increasing the amount of time lost from production 60%.

—DR. ORLEN J. JOHNSON, in "The Medical Profession's Part in the War Industrial Effort," *Pennsylvania Med. J.*, December.

JULIA KEENE, of the Westinghouse Company, reported an attractive plan initiated at this company to increase worker efficiency. "Health for Victory" clubs were organized for the workers' wives and landladies, those who prepare the workers' home meals. Monthly meetings of these clubs include chart presentation of nutrition facts and practical cooking demonstrations, with emphasis on cooking of vegetables to preserve vitamins. The plan is so successful that it has now been adopted by 200 industries.

—From "Notes on the Dietetic Convention," *Trained Nurse & Hospital Review*, January.

FOR the first time in this generation, the forces fighting tuberculosis in the United States appear to be in danger of a setback. It seems likely that the battle, which has been attended by steady success for the last 25 years, may now take an unfavorable turn . . . Notable among the factors aggravating the situation are: (1) Large concentrations of industrial workers and their families, many of them in communities without proper housing, sanitation, public health, or medical facilities. (2) The fatigue resulting from the increased hours and tempo of work demanded to keep the war machine going. (3) The employment in industry of thousands of women and others unaccustomed to heavy work, including many with minimal or inactive tuberculosis who will break down or become reactivated under the strain of the job.

—*National Tuberculosis Association Bulletin.*

DR. ALBEE pointed to the gratifying one-year experiment of Western Electric Co., Kearny, New Jersey, in 1929 in relaxing its physical requirements and employing 652 vocationally handicapped—482 males and 170 females—to work side by side and in direct competition with able-bodied workers. Almost 50% of the handicapped hired had defective vision, 16% suffered from hernia, and 19% had a deformity or had lost an arm, hand, leg or foot. Results

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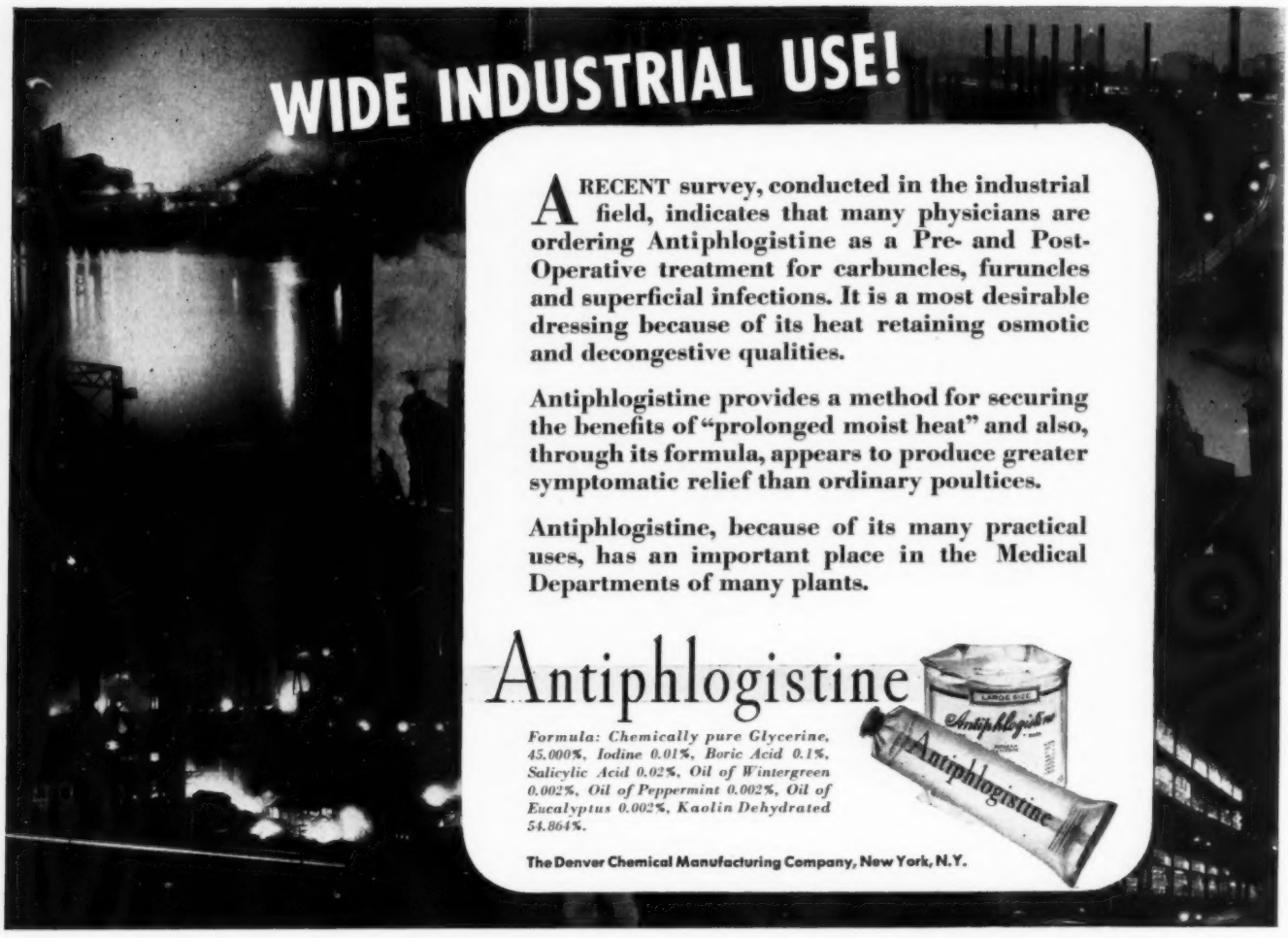
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A RECENT survey, conducted in the industrial field, indicates that many physicians are ordering Antiphlogistine as a Pre- and Post-Operative treatment for carbuncles, furuncles and superficial infections. It is a most desirable dressing because of its heat retaining osmotic and decongestive qualities.
Antiphlogistine provides a method for securing the benefits of "prolonged moist heat" and also, through its formula, appears to produce greater symptomatic relief than ordinary poultices.
Antiphlogistine, because of its many practical uses, has an important place in the Medical Departments of many plants.
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were so good that the company concluded "there is no real reason why people possessing certain vocational defects should not be employed by large industrial concerns. The results of our year's experience with the vocationally handicapped workers were sufficiently satisfactory to make their acceptance a part of the standard practice of our medical department."

—From an abstract of DR. ALBEE'S presentation at the Fifth Annual Congress on Industrial Health, in *Steel*, January 18.

AT a factory of 800 workpeople, in an industrial area in the Midlands (England), with war production similar to that in peacetime—the manufacture of porcelains and general press, machine and assembly work—records of absenteeism were kept before and during the war, and they showed a fairly steady rise throughout. In 1939 absenteeism amounted to 3.2% of working time, in 1940 to 5.5%, and in 1941 to 6.2%. The average weekly hours of work in the three periods were 49.5, 50.7 and 52.7, respectively, and in the war period a substantial proportion of the younger men were replaced by older men of lower physical grade and by a considerable number of women. The women lost much more time than the men, the average, in July-December, 1941, being 4.1% for men, 6.8% for single women and 11.5% for married women. More than 20% of the total time lost was due to short-period absences lasting a half-day or whole day. It was noticeable that on Fridays (payday) these absences reached a minimum which was only an eighth as great as those observed on the Saturdays. They were considerably greater in the younger than in the older workers. In September-December, 1941, data were obtained relating to part-time workers, all of them married women. They lost only half as much time as the corresponding group of full-time workers.

—Industrial Hygiene Foundation's digest of "Absenteeism at a Midlands Munition Factory," by V. J. GOSDEN, in *Occup. Psychology.*

PREACH and preach hard the seriousness of *fatigue*. No other single factor contributes so much to lowered human resistance against acute respiratory infections as *fatigue*. Work hours are regulated for the individual; free hours are not. Management and government do well not to overdraw work hours in zeal of accomplishment. Sleep undisturbed in adequate amount is imperative. In these days of 24-hour programs and staggered schedules of work the time for sleep is irregular. The sleep time must be guarded for the worker against disturbances in the home, in the street, in the neighborhood. Other factors in resistance are nutrition, smoking and alcohol. Wholesome moderation in eating, smoking, drinking and recreation is the gospel to preach. Specific treatment and prevention are lacking or inadequate. The magic of chemotherapy utilized in treating pneumonia is wanting in the common cold. Utilization of small doses of a sulfanilamide drug as preventive of bacterial invasion or complication is a hope not yet fulfilled but promised. Vaccine injections used as preventive methods are better the more specific they are in application. Autogenous vaccines well chosen lead in efficacy. Stock vaccines are effective in indeterminate cases. Neither warrant general compulsory use. Oral vaccines are worthy of trial because of ease of administration, lack of harm and expense. Their effect is hit and miss in a sort of hope and prayer chance of knocking out some of the secondary invaders. Vitamin therapy is a sad confession of inadequate diet. But confess we must that ultra-modern methods of preparation of foods, irregular habits of eating and excessive alcohol make vitamins in capsules necessary.

—From "The Role of the Physician in Industry in Control of Respiratory Disease," Editorial summary by JOHN H. SKAVLEM, M.D., in *Ohio State M. J.*

DURING this period when victory depends on the speeding up of our industrial production, there is the danger of an increase in accidents among workmen in factories, shops and mills; and the eye hazards

TO THEM IT WAS A "LIMB"

IN the plush and gilt homes of these mid-Victorians a leg was a "limb", and constipation, "biliousness", for which the proper cure was a strong "physic". That they managed to survive and reach ripe ages is a tribute to their innate robustness.

Today we have different ideas about what constitutes a good therapeutic measure in the relief of constipation. Physicians the world over have adopted Agarol as an evacuant that assures results the easy, gentle, yet dependable way. The original mineral oil-agar-gel emulsion, with phenolphthalein, Agarol acts by softening the intestinal contents, making their propulsion painless and easy, and at the same time supplying the stimulation needed for thorough evacuation.

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While systemic measures are indicated in neuralgia, myositis, and arthritis, local therapy must also be provided, not only because of its valuable contribution, but to satisfy the patient's demand. For this purpose, Baume Bengué possesses several advantages. Its contained menthol and methyl salicylate induce intense active hyperemia, thus aiding in removing local metabolites and lessening pain and inflammation. A significant amount of salicylate is absorbed through the skin, thus augmenting the influence of orally administered analgesics.

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of industry, especially, are greater when workers are suffering from syphilis. The presence of this disease increases the severity of an eye injury; a little cut or bruise of the cornea, that would otherwise pass unnoticed, may develop into a serious condition if the worker has syphilis."

—Mrs. Eleanor Brown Merrill, Executive Director, National Society for the Prevention of Blindness, quoted in *The Trained Nurse and Hospital Review.*

Industry, and insurance serving industry, do not fear the granting of compensation to workers who fall victims to real occupational diseases. But, it seems to me that industry cannot be made to carry the financial burden of compensation for all kinds of illness and disease, which are the common lot of all and which are traceable to employment only in the matter of time, and not in the matter of causal relation to conditions fairly incident to and characteristic of the employment.

—Henry D. Sayer, general manager, Compensation Insurance Rating Board of New York, quoted in *Chicago Journal of Commerce.*

The feeding of war workers—A Selected, Annotated, Bibliography," is the title of a vastly interesting pamphlet recently prepared by Industrial Relations Section, Princeton University. The important articles and studies on eating facilities and improved nutrition for employees, in several score medical and business publications here and abroad, are excellently abstracted —so excellently, indeed, that the sequence of summaries has the sustained interest of a well-written report on the whole subject. Rules, principles, data, methods, statistics, suggestions, theory and experience are high-lighted by pungently descriptive phrases which completely "sell" the urge to further study. Thus, Cessna Aircraft's "rolling restaurants;" Pratt & Whitney's new underground cafeteria designed to handle 12,000 a day; Monsanto Chemical's economies in restaurant operation; the "employee steering committee" for Home Products Corporation's roof-garden restaurant; National Cash Register's labor-saving devices in the kitchen; the "mobile canteen" in Scotland; Servel's 16% decrease in time lost through illness four months after its nutrition plan was instituted; General Electric's "five-star" program; the Westinghouse "Health-for-victory" club plan. The suggested "sources" for further pursuit of information include H. J. Heinz Company, Metropolitan Life Insurance Company, and National Dairy Council. Everyone even casually interested in employee nutrition should have this booklet. It is identified as Bibliographical Series No. 70; price 25 cents.

The extension and expansion of industry in recent years, particularly in the present war era, have introduced features in the practice of medicine with which the average practitioner is unfamiliar. Morbidity in industries has been greatly decreased in recent years through the introduction of measures limiting injuries to legs, arms, eyes and other parts of the body, with attention to inhalation of dusts, gases and the like. In addition to these hazards there have been added new ones by reason of new procedures with new processes of production. It is claimed that a new hazard has arisen from new uses of metals, such as lead, zinc, antimony, magnesium and others. Accordingly industrial medicine has become a specialty for which special training is needed.

—Editorial, *Northwest Med.*, November, 1942.

While the Navy Department charges that a great many of the shipyard workers voluntarily take holidays, probably a large portion of the absent men are physically upset in one way or another. Veteran workers in almost any business sometimes go along for years without missing a day due to sickness or minor accidents. They have already learned how to take care of themselves, which is something that really has to be learned. Youngsters and green men take unnecessary risks with machinery. Workers in the local plants tell us supervisors and foremen are constantly warning both men and women workers to have more respect for the danger of the tools and machines they are handling. The inexperienced also suffer a lot because they do not know how to eat properly, particularly on shifts that require unusual hours. They eat at the wrong time, eat the wrong things and fail to get adequate rest. In a little while this catches up with them in a form of fatigue that takes all the interest out of their job and

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makes them susceptible to colds, influenza and any other diseases to which they are exposed. We can almost predict that in 1943 this may be less of a problem than it was in 1942, assuming there is not too great a turnover in manpower. Those who have gone through 1942 probably have learned how to take care of themselves and will have a better record next year.

—*Freeport, (N.Y.,) Nassau Rev. & Star.*

THE war brought urgent problems to the Department's industrial hygiene physicians and engineers in 1942. Rapid conversion of a great part of Michigan's industrial plants to war production, with consequent adoption of new processes, speeded-up tempo of work, use of substitute materials and employment of large numbers of women, older men and less-skilled workers has created new hazards and increased others. Requests for the services of Department industrial hygiene physicians and engineers in improving working conditions in war industries were so numerous that the Bureau of Industrial Hygiene has work booked well into 1943.

—*Saginaw (Mich.) Press.*

WPB officials declared today (January 15) that "absenteeism" among workers, which is costing 300 planes monthly, is one of the nation's "most serious" manpower problems in all war plants. Its seriousness was emphasized by the disclosure in Los Angeles by Charles E. Wilson, WPB production vice-chairman, that absenteeism in the aircraft industry alone is costing such a heavy loss of planes. Wilson, in the company of army and navy representatives, is on an inspection trip through west coast plane factories to study the industry's problems and work out solutions which will permit a higher production rate. In Washington officials asserted that the absenteeism issue was serious in shipbuilding and other war industries.

THE clinical findings developed experimentally in humans were the same as those reported in cases of acute illness among workers exposed to high concentrations of stained cotton dust. The clinical syndrome of this illness is similar to that of an acute intoxication. Since this acute illness closely resembles mill fever, Monday fever, and gin fever in cotton mill workers, heckling fever, mill fever, grain fever, and hemp fever reported in workers inhaling flax, jute, grain and hemp dust respectively, it is suggested that the toxic products liberated by the cotton bacterium or some closely related species may be the etiological agent for these diseases. It was concluded that the acute illness occurring among workers using low-grade stained cotton is caused by the inhalation of an endotoxin-like substance produced by a Gram-negative rod-shaped bacterium contained in or on dust from stained cotton. This micro-organism has been tentatively placed in the genus *Aerobacter*.

—From "Etiology of Acute Illness among Workers using Low-Grade Stained Cotton," by ROY SCHNEITER, PAUL A. NEAL, M.D., and BARBARA H. CAMINITA, in *Am. J. Pub. Health*, December.

THE physician must be familiar with the industrial processes and chemicals used in his plant, if he is correctly to detect the sensitizing occupation. He should note in his pre-employment examination all skin defects as acne vulgaris, ichthysosis, seborrheic dermatitis, also all allergic manifestations as asthma, hayfever, eczema. Notations are not enough, however. The physicians should suggest the type of work the employee can safely perform, if we are to cut down the incidence of occupational disease. Having been employed, the nurse should instruct the employee in personal cleanliness. More dermatitis is produced through greasy or solvent soaked clothing, together with kerosene, turpentine and abrasive soap cleanups, drying off with the air hose, than by their occupations. The employee should likewise be instructed in the hazards of his occupation. The contact type eczematous employee does not usually become more resistant to his sensitizing job, but frequently develops a polyvalent sensitivity and perforce must change his occupation, frequently drifting from job to job because of his injured integument. The industrial physician should endeavor to rehabilitate this man by placing him in a non-sensitizing position.

—From "Contact Dermatitis," by H. L. CLAASEN, M.D., in *Ohio State M. J.*, January, 1943.

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The worker who is putting in long, hard hours day after day doesn't get much opportunity for sunshine.

You can't bring the sun into the factory, but you can offer an efficient substitute for the sun's ultraviolet by recommending the installation of a

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Some factories, mines, and institutions have installed Burdick Solaria along with an enforced regime of cleanliness as an aid in maintaining the health of the workers.

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PHARMACEUTICAL CHEMISTS SINCE 1886

ROCHESTER, NEW YORK

SIXTEEN dentists in Flint, Michigan, are taking special training in Flint hospitals at the invitation of the Genessee County Medical Society to enable them to assist physicians by performing certain medical procedures and thus to relieve the shortage of physicians created by the demands of military service. The training will qualify the dentists in obtaining blood for examinations, intravenous feeding, intramuscular injections, intravenous injections and obtaining blood from donors for blood banks. Several are already qualified in some of these fields and are assisting in clinics and with Selective Service examining boards. Colorado dentists are engaged in a similar program under the auspices of the Colorado State Dental Association and the Committee on Emergency Medical Service of the State Defense Council. The plan was initiated by the presidents of the State Dental Association and the Denver Dental Association, in cooperation with the board of trustees of the Colorado State Medical Society. Facilities of the University of Colorado School of Medicine and the Colorado General Hospital have been made available for the instruction. A class of 70 dentists has finished a course of lectures on anesthesia, and small groups are now assigned to the hospital for practical training. It is planned that the dentists shall return to the hospital at intervals for review after their training is completed. Preliminary lectures on shock and treatment of open wounds have also been presented. Classes are being organized in maxillofacial surgery, oral surgery, serology, taking of blood for transfusion, and in the treatment of shock, hemorrhage and open wounds. Dr. Ralph Christy, president of the state dental association, in a report to the Dental Preparedness Committee of the A.D.A., emphasized the desire of dentists to assist the medical profession in an emergency, the willingness of physicians to give the necessary instruction and the importance of practical training in hospitals in addition to didactic lectures. The Medical Division of the Office of Civilian Defense in April issued a statement recommending that dentists qualify themselves in first aid in order that they may act as instructors and as members of emergency medical field units in casualty stations and first aid posts in the event of air raids, in the administration of anesthesia, and in the care of injuries of the face and jaws.

—From "Dentists to Aid Physicians," in *Illinois M. J.*, December.

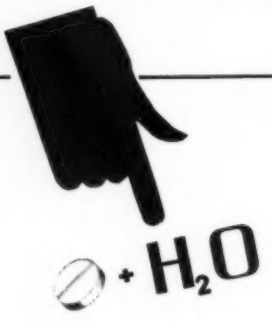
HIGHLIGHTS of the achievements of the National Foundation for Infantile Paralysis during the past fiscal year were: (1) Teaching of the Kenny method of treating after-effects, which entailed establishment of special training programs to provide doctors, nurses and physiotherapists to apply and carry on the method. (2) Broadening of study in search of a prevention and real cure. (3) Addition not only to knowledge of the nature of the virus but also the method of spread of the infection. (4) Re-emphasis of the little appreciated role of "spasm" and other temporary symptoms that, if untreated, result in permanent damage. (5) Correlation of the study of infantile paralysis with studies of related encephalitis infections.

WITH the changing age composition of the population, the problem of degenerative diseases is assuming major significance. We know that the gains in the length of human life are chiefly the result of the prevention and control of disease and of raising the standards of health in the population under 20 years of age, particularly during the very early years of life. The number of people in the older age group is gradually increasing, and, therefore, diseases of the heart and blood vessels, cancer, nervous diseases, and other chronic disabling conditions will assume much greater importance during coming years in hospital wards. Obviously this change in our hospital population will have a far-reaching effect upon changing medical practice.

—W. S. LEATHERS, M.D., in "Some Significant Achievements in Public Health," *J. Tennessee M. A.*, December.

Rapid results in contact dermatitis DOMEBORO TABS

Act faster than Burow's or boric acid



Check with other leading war industries. You will find that they are using Domeboro Tabs as a *preferred* wet dressing in their daily fight against contact dermatitis, mechanical injuries, bruises, contusions, sprains, and inflammation.

Why this nation-wide swing to a new kind of wet-dressing therapy? Because Domeboro Tabs have been proved, by clinical tests on actual industrial cases, to promote more rapid healing and to bring faster convalescence than older methods. (Burow's, boric acid, aqueous magnesium sulphate.)

Domeboro Tabs are so remarkably easy to use. A single Domeboro Tab in water makes an effective, stable, lead-free solution. Patients find the tablets easy to carry with them. Regular treatment at home hastens recovery.

Why use slower methods? For all wet dressings, specify rapid-acting Domeboro Tabs.

ACCEPTED! Domeboro Tabs have been approved by the National Research Council and officially accepted for use by the medical departments of the Army and Navy.

For Trial Samples and literature, write

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INDUSTRIAL fatigue involves not only a variety of physical factors but also psychological attitudes of the group and an employee's interest in his own job. Although interest cannot prevent physical exhaustion as a result of excessive hours and difficult conditions of work—as was evident in England during the all-out production effort following Dunkerque—the observed experience in the Western Electric Company suggests that, under reasonable working conditions, attitudes and interest may be the most important factors in increasing employee productivity. Personnel executives recognize that during wartime it becomes especially necessary to consider means of assuring the employee's interest in the job and to study the relation between his interest and his ability to work a faster pace for longer hours. Companies which have given attention to these questions have found the following policies and methods helpful in increasing employee interest and productivity: (a) Rotate workers between jobs when the work of one is highly monotonous or involves special fatigue, such as eyestrain. (b) Provide an opportunity for talking over individual grievances or problems. A few industrial firms and government agencies, in addition to clarifying grievance procedures, have established counseling services to encourage employees to discuss personal problems which might affect vitally their desire and ability to do the best job. The companies, likewise, which are employing special personnel assistants or counselors for women feel that these services will help the new women employees to achieve productivity as quickly as possible. (c) Investigate absences to find out individual reasons for unusual fatigue, and try to improve the conditions at fault. (d) Encourage individual and group participation in improved work methods and working conditions. Many companies have reported the benefits from well-developed suggestion systems and union-management production committees. Descriptions of the company's war products in the employee magazine or special leaflets, announcements of suggestions accepted and awards given, and posted production schedules and records for each department all help to show the employee the importance of *his* job to the war effort.

—Paragraph on "Employee Attitudes," in "Fatigue and Productivity," No. 12 of the Industrial Relations Digests, prepared by Industrial Relations Section, Princeton University.

PREVENTIVE medicine is practiced most effectively through the operations of clinics and other types of organized medical care. *The most common of these is the industrial medicine now prevalent in practically every large business and factory in the United States.* Industrial medicine systematizes diagnosis and treatment of minor ailments, makes treatment cheaper for the patient and makes payment more certain for the doctor. It relieves the doctor of many nagging details of routine, gives him more time for important work, and generally improves medical practice. The best test of its value is this: Does it work? It does. It is growing, too.

—FRANK C. WALDORP, in *Washington, D. C., Times- Herald.*

MORE precise data on workers' diets were furnished by a study of the diets of about 1,100 aircraft workers in Southern California. The report on this study has been elaborated in some detail and cannot be adequately summarized here. Over 55% of the diets were classified as poor as regards consumption of green or yellow vegetables; nearly half were deficient as regards citrus fruit or tomatoes; about a third were poor in milk, a fifth in eggs, but almost all were satisfactory in the amount of lean meat consumed. Only 2% of the diets contained satisfactory amounts of each of the five food groups, while 87% of the diets had amounts definitely below those recommended by the Food and Nutrition Board of the National Research Council. Two hundred and fifty complete two-day diet records (the conclusions above refer to weekly diets) were analyzed to obtain approximate values for their nutritive content. The percentages of the diets in which the amounts of specific nutrients were less than two-thirds of the recommended daily allowances were: protein 0.8%; iron 4.0%; niacin 7.2%; thiamin 14%; vitamin A

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"It's convenient, comfortable...and confidential"

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Paralleling this clinical evidence, exhaustive laity experience (over half a billion have been used) attests the ease of insertion of the compressed Tampax by its slender individual applicator . . . the absolute comfort provided by its flat expansion in situ (exclusive with Tampax) . . . the active freedom of its wick action in "soaking up" the flow . . . and the daintiness with which removal (without probing) is facilitated by its unique cross-fibre stitching and moisture-resistant cord. No external bulkiness, nor exposure of the discharge to odorous decomposition, can betray the period.

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*Magid, M. O. and Geiger, J.: *Intravaginal Tampon in Menstrual Hygiene.* Medical Record, May, 1942.

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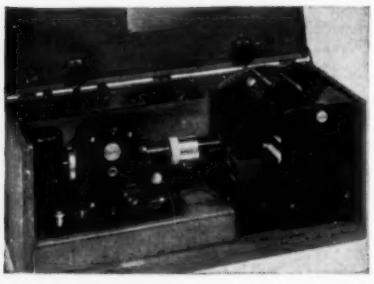
OLD JOE is turning out precision parts again. A couple of years back he trained Young Joe to run his machine. Since then he has been reading and dozing in the winter and fishing in the summer. But now Young Joe is a machinist on a battle wagon so Old Joe just had to come back.

There are plenty of Old Joes throughout industry . . . in the shop, in the office and in executive positions. It's the Doctor's responsibility to watch over their patriotic old hearts to keep them fit for duty on the home front. The need for frequent physical examinations is imperative and no such examination may be considered complete without an electrocardiogram.



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14.8%; calcium 24.8%; riboflavin 43.2%; ascorbic-acid 46.0%. There were 71.6% of these diets which fell short of two-thirds of the daily allowance in one or more specific nutrients. It is surprising to find that 40% of the men reported diets which furnished less than 140% of basic metabolic needs, as this level of caloric intake is insufficient for men engaged in work involving physical activity. The workers who reported these diets were medically examined to determine their nutritional status at the beginning of the study. The results of these examinations have not yet undergone complete analysis, but Dr. Henry Borsook, director of the study, has reported some preliminary findings. Forty-two per cent of slightly less than 1,000 workers had less than 0.5 mg. per cent blood plasma ascorbic acid (17% had less than 0.25 mg. per cent). Nineteen per cent showed signs of premature degeneration of the nervous system as evidenced by loss of vibratory sensation in the toes to a C-256 tuning fork. This is generally accepted as pathological in men under 35 years of age. Forty-seven per cent had localized, elevated conjunctival spots (Bitot's spots); evidence of vitamin A deficiency. Over 28% had a blood hemoglobin content of less than 14 gm. per cent. Capillary invasion of the cornea of the type indicative of riboflavin deficiency was almost universal. The final report of this study will be of the greatest interest, as about half of the men are being treated for their nutritional deficiencies.

—From "Food and Nutrition of the Industrial Worker in Wartime," by FRANK G. BOUDREAU, M.D., and ROBERT S. GOODHART, M.D., in *Am. J. Public Health*, December, 1942.

WHILE the volatility and toxicity of such materials as benzol, carbon disulphide, carbon tetrachloridle, or trichloroethylene may vary, the following general control measures should minimize the hazards from all these solvents: (1) Obtain complete analyses of materials used. (2) List all compounds used. (3) Check list for toxic materials. (4) Study operations where toxic materials are used for possible employee exposure. (5) Determine the concentration of toxic materials in the air. (6) Bring toxic concentration within safe limits by substitution, enclosure, or exhaust. (7) Check efficiency of control by periodic physical examinations. (8) Physical examinations should include examination of blood and urine.

—From "Hazards and Control of Industrial Toxic Solvents," by WM. M. PIERCE, Supervising Chemical Engineer, Employers Liability Assurance Corp., in *Chemical & Metallurgical Engineering*, December, 1942.

THE study of industrial fatigue is an important factor in the prevention of cardiovascular disease. Human fatigue has been defined personally as a state of the human organism in which there is insufficient or lack of balance between intake and output of biologic energy. Fatigue is due to this lack of balance and manifests itself as a deterioration of efficiency, feeling of tiredness and physiologic changes (pulse rate, blood pressure, etc.). It is necessary to recognize the actual existence of industrial fatigue in a worker or in a group of workers. Fatigue is a defense mechanism manifested with various symptoms and signs in varying degrees. The employee may look tired, manifest irritability, yawn frequently, and move slowly; he may present a pallid complexion, heavy eyes, and drooping shoulders. General physical examination may be negative even though he complains of morning tiredness, of not feeling refreshed after a heavy sleep, and of headache and vague pains in some part of the body. It is necessary to distinguish between the industrial and non-industrial factors in these cases.

—From "Cardiovascular Disease in Industry," by W. J. EGAN, M.D., in *Wisconsin M. J.*

IF THERE are any doubters about the dissimilarity between general medicine and industrial medicine, let them, as a test of their knowledge, answer the questions propounded by Johnstone in discussing this common misapprehension. "What are the signs and symptoms attributable to the illness allegedly arising from the occupation of a furrier, fumigator,

How To Keep Goggles CLEAN

Improved Ful-Vue Goggle (Patented)

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STERILIZE THEM . . . *to Avoid Face and Eye Infection*

To avoid eye infection, dermatitis, and skin rashes, goggles should be sterilized at definite, regular intervals. Before a pair of goggles worn by one worker is turned over to another, it should be sterilized. There are many effective methods of sterilization. Six of the simplest, most effective methods are described below. If additional information on this subject is desired, it may be obtained readily from The National Safety Council.

Six Typical Methods of Sterilizing Goggles

NOTE: Before sterilizing, clean goggles thoroughly with soap and hot water. Scrub eyecups, lens rings, side screens with stiff brush.

1 Immerse goggles in a moist atmosphere of an antiseptic gas (e. g. formaldehyde) at room temperature for not less than 10 minutes.

2 Immerse in boiling water for 5 minutes.

3 Expose to real, live steam for at least 5 minutes.

4 Soak for 10 minutes in formalin solution (one part 40% formaldehyde solution to 9 parts water). Rinse well in boiling water.

5 Dip in a 70% solution of denatured alcohol and allow to dry.

6 Dip in a 3% cresol solution for a few minutes, then wash in water very thoroughly. When this method is used, all traces of cresol must be removed before goggles can be safely worn.

SUGGESTIONS

Sterilization should be assigned to a person who thoroughly understands the work . . . under supervision of doctor, nurse, or safety engineer.

Person doing the work should be fully protected. Goggles should be handled with gloves.

Until re-issued, seal goggles in paper envelope marked: "Sterilized for Your Protection."

WIPE THEM CLEAR

to Avoid Eye Strain and Inaccurate Work

Dirty lenses can cause eye strain and fatigue that result in poor work. Clogged side-screens cause lenses to fog. For clear, comfortable vision, and to reduce rejects, goggles should be cleaned daily. Screens and lenses both should be washed daily with soap and water, rinsed, and carefully wiped with a clean cloth that is used for this purpose only. Cloth should be free from dirt and grit, and should be frequently replaced with a new one. Goggles should be treated like regular glasses . . . kept sterile-clean and clear of dust, dirt, and oily or greasy fingerprints.

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The ultimate strength of a nation is based on the physical well-being of its people. Of small worth in the defense of America would be a powerfully equipped Army and Navy — without a physically-fit personnel. Yes, and of small worth such military might without the support of a physically-fit civilian population . . . in the defense industries, the mines, the farms, and countless other occupations essential to the nation's welfare.

Vitally important, therefore, is the part our medical profession plays in maintaining Public Health. And standing shoulder to shoulder with you are the manufacturers of pharmaceuticals, apparatus and supplies . . . sparing no effort to see that everything essential to the physician's armamentarium is forthcoming.

Since X-Ray screens are essential to the radiological profession, Patterson has long been preparing to maintain production through this emergency. Research as well as output are being stepped up. As always, our extensive testing facilities and highly trained personnel are maintaining laboratory control over every process from raw materials to finished screens. As a result, the roentgenologist will continue to receive the unexcelled performance he expects from his Patterson intensifying and fluoroscopic screens.

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sandblaster, welder, maker of felt hats, abrasive soap maker, cotton sorter or degreaser (textile): from employment with refrigeration, vulcanizing or photography, or from working with rayon, benzene, cement dust, carbon disulfide, carbon tetrachloride, aniline dyes, pottery, chromium or methyl chloride or with solutions used in electroplating, glass etching or dry cleaning? Having listed these signs and symptoms, state whether the illness is apt to be acute and temporary, without sequellae; sudden, with death ensuing or permanent disability resulting; or insidious, with or without permanent disability." Add to these the new and complex problems in war industry associated with the handling of toluene, the use of cutting oils, high-speed grinding operations, the increased use of the welding arc and its attendant dangers, sand replacing shot-blasting, and the use of magnesium and other metals in so many operations. Another condition which has presented the need for additional application of medical knowledge is found in the fatigue factor, resulting in lessened efficiency and increased accidents. The necessity for an adequate and well-balanced diet calls for nutritional suggestions from the medical attendant. All of these and more are the elements which go into the increase of absenteeism, and this is the bugbear of production. It has been estimated that industrial workers engaged directly in the manufacture of military necessities may lose as much as 90 million days of work in 1942 because of illness and accidents. This represents enough time to build 7,200 four-engined "flying fortresses" for the Army. So it becomes the job of the industrial physician to see that absenteesim is reduced to a minimum in order that the stream of guns, tanks, ships, and planes will flow with increasing and uninterrupted rapidity. No wonder then that the "industrial physician may well feel that if war conditions do not overwhelm him by their magnitude, they will overcome him by their complexity." The job of the industrial physician is, therefore, one of a specialist in general practice and a general practitioner of a specialty.

—From "Wartime Industrial Surgery," by N. K. FORSTER, M.D., in *J. Indiana State M.A.*, January, 1943.

IN THE Western Electric Company the problem of excessive illness was confined to a relatively small proportion of the entire plant population. Of 12,000 employees, 1600 were sickness-prone. These were selected as the group on which to concentrate efforts because it was believed healthy persons give health no real thought. Persons with experiences of sickness are found to be much more receptive to health education. After a thorough physical examination of this group, their repeated illnesses were discussed with them. Interviews were repeated and problems discussed as they arose. As time went on it was found that this formerly sickness-prone group showed less illness than did the control group. The individual's illness record led to a study and treatment of his whole self, not just his immediate complaint. So often the symptom itself is merely an unconscious expression, through illness, of disappointment in work or in home life.

—From "Mental Hygiene in Industry," by EUGENIA S. CAMERON, M.D., in *Public Health Nursing*, October, 1942.

EMPLOYER-EMPLOYEE relations in New York State are suffering and war production lags because hundreds of war plants have no eating facilities for workers, declared State Senator Thomas C. Desmond, of Newburgh, chairman of the New York State Joint Legislative Committee on Nutrition, in making public a recent survey on the nutritional status of war workers by DR. MAY R. MAYERS of the Division of Industrial Hygiene of the New York State Department of Labor. "DR. MAYERS' report to our committee," said Senator Desmond, "lays bare the details of an alarming food situation in New York State war plants. In 856 plants employing 390,426 workers, the Division of Industrial Hygiene found that: more than one-half (51%) of the plants provided no lunch-room facilities for their work-

ers. In only one plant out of five (19%) was hot food purchasable. Only one-half (52%) of the plants had milk available for their employees. In three-quarters (77%) of the plants only 30 minutes or less was allowed for lunch. According to DR. MAYERS, lack of eating facilities leads directly to two results which weaken the war program: production lags because employees fail to get, during their working day, the one-third of their daily food requirement that they need during working hours; and employer-employee relations are strained when workers are not provided with proper food in the plant. DR. MAYERS further informs the committee that war conditions have undermined the whole dietary status of industrial labor. Today the average worker spends more time in the factory and works harder than ever before. This abnormal drain of energy calls for increased food consumption. But this increase many workers fail to get. Not only is there a lack of factory canteens and restaurants in existing plants, but many new industries have mushroomed up in rural areas remote from commercial eating establishments. Partial solution of this pressing war problem may lie in inducing war plants to provide adequate eating facilities. DR. MAYERS suggests that it may also be necessary to establish food priorities for this industrial army. Widespread rationing is here, and food will become even scarcer as time goes on. Our armed forces must have first priority on food, but DR. MAYERS believes we should study the possibility of special ration cards for war workers to be used exclusively for the purchase of food in the plants where they work. The members of the committee will study DR. MAYERS' report with care. Many of its facts are startling."

—*Monticello (N.Y.) Evening Post.*

IT SEEMED to me also that in connection with British restaurants, which are undoubtedly a godsend to all people with families who have to get food occasionally out of their own homes in moderate-priced places, there might be developed a service where people could order food and take it home with them. Of course the evening meal is a fairly simple meal to get in Great Britain so that the canteens in every factory, with their midday and midnight hot meals, and the universal school lunches for children in school, do mean a great relief and reduction in the home cooking. We probably do more preparation for our evening meal than they do and it might be more important to us to have a home service than it is to them. This, of course, is only necessary in places where great numbers of women go from the homes to work on a full daily schedule and over here we will probably never have the long hours which they have been forced to have in Great Britain. There is also a possibility of organizing neighborhoods into cooperative groups for filling these home needs. They acknowledge in Great Britain that it is better to work shorter hours, particularly for the women, but necessity and shortage of manpower drives them to the longer hours.

—From a broadcast by MRS. ROOSEVELT, presented by the Council on Candy as Food in the War Effort, December 9, 1942.

JANUARY 1, 1941, the Foundation, aided by the U. S. Public Health Service and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, started a study among its member companies to help reduce sick absences in industry. Thirteen companies, scattered through numerous industries, are keeping records of sick absences for approximately 50,000 employees. Simplified forms, designed by DR. W. M. GAFAFER, of the Public Health Service, call for such data as, "date absence began," "date terminated," "cause of illness," etc. Each month the Foundation collects the completed forms, relaying the material to the Public Health Service where it is analyzed. Obviously valuable in such a study is the company comparison of experience which helps show whether a firm's rate is good or "out of line." A progress report was recently completed covering the first six months of the study. . . . It has been shown that the higher the wages and the more overtime worked, the more time men will endeavor to take off. Colds are apt to be magnified to cover a ball game or "one-day pneumonia" following a big night. In studying absenteeism and collecting data, companies must

—*Continued on page 113.*

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The External Cod-Liver Oil Therapy

USED EFFECTIVELY IN THE TREATMENT OF

Wounds, Burns, Ulcers, especially of the Leg, Intertrigo, Eczema, Tropical Ulcer, also in the Care of Infants

Desitin Ointment contains Cod-Liver Oil, Zinc Oxide, Petrolatum, Lanum and Talcum. The Cod-Liver Oil, subjected to a special treatment which produces *stabilization* of the Vitamins A and D and of the unsaturated fatty acids, forms the active constituent of the Desitin Preparations. The first among cod-liver oil products to possess unlimited keeping qualities, Desitin, in its various combinations, has rapidly gained prominence in all parts of the globe.

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Indications: Minor Burns, Exanthema, Dermatitis, Care of Infants, Care of the Feet, Massage and Sport purposes.

Desitin Powder is saturated with cod-liver oil and does not therefore deprive the skin of its natural fat as dusting powders commonly do. Desitin Powder contains Cod-Liver Oil, (with the maximum amounts of Vitamins and unsaturated fatty acids) Zinc Oxide and Talcum.

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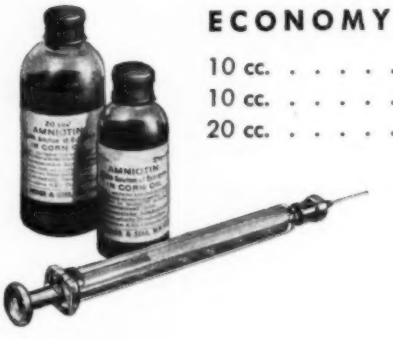

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Psychology and Industrial Nutrition Programs

—Food in Relation to Mental Processes—

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THE gradually increasing interest in nutrition throughout the nation has reached a peak in these war times, which demands that phases of the national nutritional program need to be considered which heretofore have been neglected. It is a far cry from the feeding programs of only 25 years ago, where workers were felt to be sufficiently well fed if they did not complain about being starved, to our modern wartime program which emphasizes the need for a balanced ration for workers of all kinds in order to keep them fit to do their jobs.

It is not particularly strange that the psychological aspect of the nutritional program has not been emphasized up to now. Scientists who are studying nutrition have only recently been able to present facts about certain foods which were necessary for health not because of their fuel value but because of their value in preserving the worker's general well being.

Until such bodily needs and the psychological reactions to the dietetic failure to fulfill them were recognized as well as they have been within the past few years, the psychologist's interest in food was limited to studies on highly abnormal persons, so that, until two years ago little material was available which could be utilized in industrial medicine.

Psychodietetics

THE psychological and psychiatric study of food in relationship to mental processes has been given the name of psychodietetics. There are five aspects of psychodietetics which are currently being given consideration. They are:

1. Reactions toward foods observed in mental cases.
2. Causation of mental disorders by improper feeding.
3. Improper nutrition due to peculiar psychological reactions, such as food fads, bad eating habits and abnormal attitudes.
4. The effect of abnormal nutrition upon the person's ability to think and to make a mental-hygienic adjustment.
5. The use of educational psychology as applied to nutrition.

The last three of these aspects of psychodietetics apply to the worker, and the industrial physician would do well to turn some of his attention to the psychological problems involved in seeing that the employees under his care are properly fed.

There is no need for the argument here that improper feeding lessens efficiency. That has been demonstrated and re-emphasized on all sides recently.[1] We might mention specifically, however, that vitamin B complex deficiency causes irritability among workmen and excessive fatigue. Lack of iron in the diet also diminishes the worker's ability to carry a full day's work. Even office workers are affected as well as manual workers; and a recent study of executives reveals a surprisingly large number who are malnourished,[2] and the author suggests the implication that, were the nutritional deficiencies or inadequacies properly cared for, the executive's ability to do his job would show a significant improvement.

The Industrial Physician and Psychodietetics

FROM the standpoint of psychology, the industrial physician has two problems in seeing that the plant personnel are properly fed. It is assumed that he knows from the physiological angle exactly what food elements good nutrition demands, and that he has been keeping up with the literature on the subject, so that, if he is shown the menu of his plant cafeteria for a certain day, he can analyze its weaknesses and insist upon the inclusion of absent necessary dietary elements in future menus.

I have talked recently with plant physicians who felt, unfortunately, that supervision of the cafeteria was not within their province and who showed only an academic interest in the matter of employee feeding. Such physicians, I can only stimulate to greater activity along these lines by saying: Look about you and see that other plant physicians *do* recognize that supervision of employee feeding is part of their field of activity.

In the Southern Michigan industrial areas, we find all types of medical supervision of lunch rooms and eating facilities for the employees. Smaller plants make no provision for feeding their people. Some larger plants have facilities for feeding only a small part. The third group could, if the men so desired, feed practically the whole plant population.

From the Psychopathic Clinic of the Recorder's Court, Series PD No. 3.

The medical supervision of these lunch-rooms and cafeterias must vary greatly. Those plants which make no provision for feeding their employees force those workers who do not bring their lunches from home to get what they can from neighboring lunch counters, most of which provide only soft drinks and the ubiquitous frankfurter and hamburger. Lunch at such a place is almost sure to be vitamin and probably mineral deficient. In the plants where the lunch-room is integrated into the plant itself, the plant physician's supervision varies from a complete lack of interest because the lunch-room or cafeteria is run under contract by an outside company, to a careful checking of the daily menus by a skilled steward or dietitian under the direction of the plant physician. At least two plant physicians with whom I have talked recently about this problem state that the proper operation of the plant cafeteria is a matter of extreme importance to them, and that a measurable part of the day's activities consists in supervising the cafeteria as to menu, cleanliness and even efficiency.

The plant physician has a responsibility toward the employees which is not completed merely by checking the wholesomeness of the food and by preventing contamination of it. Since the modern industrial physician has educational responsibilities in addition to all of his other duties, he has undertaken, in many plants, to educate the personnel with regard to proper nutrition. Such publications as "Food Joins The Colors," which was widely distributed in the Westinghouse organization, indicates that this responsibility is recognized by industrial physicians, and the fact that some have been supervising restaurants constantly indicates that the industrial physician will soon be unable to avoid complete function of responsibility with regard to the nutritional welfare of the employees. Since his responsibility does not stop with the mechanics and cleanliness of the food source, it must be obvious that the next step is psychological in nature and consists in seeing that the employee actually eats the right food. In doing this he is up against a double problem. First, he must see that the food which is made available at the plant will be purchased and eaten in the proper proportions for the worker's health, and, second, he must urge, as far as he can, that the food which is brought from home be wholesome.

Intrusive Supervision

IN DEALING with problems such as those of nutrition, the psychologist recognizes that one comes so close to the actual living activities of employees that he has to be very careful to avoid the slightest taint of tampering with their private lives—avoidance of which constitutes the first major psychological factor that confronts the industrial physician in supervising the food habits of the employees. So far he has, properly, entered into the homes of employees through pamphlets and instructional material.

In talking to some union officials in Detroit, it has been made quite clear to me that any effort along nutrition education which the plant physician would make in cooperation with the union might very well be highly successful. The union is able to get into the homes in many instances where a representative of management cannot, and the older and more stable unions have already talked of programs leading to better nutrition. I believe that, while union cooperation is highly desirable, psychologically sound means of educating the worker and his family can be carried on through the use of his prestige by the plant physician if the following aspects of the educational campaign are kept in mind:

1. Handbills, posters and material which must be memorized or remembered are of little value, and the facts are seldom reported to the one at home who prepares the meals.
2. Educational material must be given out at a time when the employee can put it in his pocket and carry it away, to be brought out again at some leisure period, especially at home.
3. Literature which is passed out must be simple, so that workers, some of whose wives are not too well educated and not too bright, will find it not only of interest but also easily read and easily applied.
4. The incorporated material should be designed to simplify rather than complicate the housewife's life. If she has to do a new type of marketing, look for the new articles of food to prepare, spend more time over the stove than she has in the past, all of the nutritional advice will be wasted. If her food preparation can be supplemented rather than supplanted, such advice is acceptable.
5. The material must be specific. No general rules should be used if they can be avoided. Rather it would be advisable to make available a certain number of simple, well planned menus, with simple recipes to appear at stated intervals.
6. If possible the material should be prepared in such a way that the housewife can keep it systematically available, rather than allow it to lie around or throw it away because it is too flimsy to be put in a bookcase, or because it is folded in such a peculiar manner that it will not fit into her scrap book or recipe file.
7. As little responsibility as possible about nutritional matters should be assigned to the men of the family.
8. In the case of women workers who prepare their own meals, effort should be directed toward making them so simple that the cooking and meal preparation will not be an additional fatiguing process for an already tired body and mind.

In my own experience in examining domestic relations cases and interviewing the wives of workers of very diverse kinds, I cannot be too sanguine that the passing out of educational material produces results. In the first place, strangely enough in spite of the furor about nutritional education, most meals of families today are usually moderately well balanced. Certain essential elements of nutrition are omitted, particularly some of the vitamin elements which are found in the leafy and green vegetables, and some of the mineral elements which are found in shell fish. It is interesting to the psychologist to note the mental reactions of housewives with regard to food. While the General Food Survey[3] of housewives indicated that only a small proportion did not like to cook, individual interviews have convinced me that a much larger proportion dislike to cook anything new or change a cooking routine which may have been learned from a grandmother or great-grandmother.

The Cold Lunch

THE tradition of bringing lunch from home has its psychological roots in (1) the belief, which sometimes is definitely true, that it is more economical; (2) the dislike that some workmen have of waiting in line to be served; and (3) in habit—for many workmen learned to bring their food from home when they first began to hold a job, when there were no cafeterias or restaurants, and they have adhered to this practice regardless of the nutritional and perhaps even economic advantage of buying their meals at the plant.

The time is not yet ripe for weaning the workman away from his box lunch, but in response to questions which I asked many workmen whom I have seen, either coming through our Clinic or sent to me by various draft boards, it is quite apparent that the cold lunch carried from home is seldom a well balanced lunch and, too, is seldom properly supplemented by the other meals at home. It has not been uncommon in my experience in investigating the food habits of workmen to find that lunch consists primarily of sandwiches, and supper, which should supplement this highly starchy diet, consists of macaroni, potatoes, more bread and a starchy dessert. Nowhere could I find, in a large number of cases interviewed, any evidence that the "hidden" nutrients were included in the workman's diet.

If our workmen are to have properly balanced diets, it will be necessary either for the wives to see that the lunch which is brought from home contains adequate food elements, or for the employer to wean them from the carried lunch to the lunch which is provided at work.

The student of applied psychodietetics problems is confronted with a serious problem in trying to teach housewives to provide a properly balanced cold lunch. In the first place, it is considered proper and economical that the cold lunch which is sent with the husband should contain left-overs if possible. The housewife forgets that it is possible to buy food economically, so that it will be completely eaten at the meal for which it was bought, or that it can be used in a well-prepared left-over dish which permits the inclusion of supplementary nutrients which cannot be included in the cold lunch.

The psychologist knows that certain articles of diet which are necessary for at least one meal cannot be included in the cold lunch which was brought from home because of an esthetic factor. Lettuce in a sandwich in which the bread has been buttered the night before or in which the filling is somewhat moist will wilt between the time the sandwich was prepared and the time it is eaten. Most men have built up food likes and dislikes, so that a soggy sandwich—lettuce and tomato, for instance—which their wives would enjoy in a restaurant, would not be satisfactory for them to carry for a cold lunch. Vegetables, particularly left-over vegetables, cannot be incorporated into a sandwich, but in a prepared box lunch which is made available by commercial box lunch companies, vegetables and salads have been included in a wax-paper cup, thus balancing the meal. Nothing but tradition keeps the salad cup out of the worker's home-prepared lunch box.

I think that there is a distinct trend toward eating a certain amount of fresh fruit, but the trait of inertia, which is one form of what the layman calls laziness, is observed by the psychologist, for the worker often refuses to eat oranges because he doesn't want to peel them. Therefore, only easily-peeled fruits, like bananas, or those which can be eaten without peeling, like plums, grapes, peaches and apples, are eaten by the worker. None of these fruits makes available the same amount of vitamin C that the orange does.

Greater opportunities are given for a well-balanced cold lunch if these lunches are sold at the factory, but the argument of economy disappears. A man who pays 30 cents for two sandwiches believes that he has lost that amount of money because he could have had two sandwiches prepared at home at no additional cost by having his wife use "left-overs." Since so many workmen have fixed habits of thought, it is difficult to show the lunch-bearer that, in the long run, the wife has had to buy a great deal of bread and filling at retail in order to supply a month's sandwiches for her husband, so that the saving is not as great as the worker believes to be the case.

The Short Lunch Period

BECAUSE of the usual short lunch period, the worker, quite advisedly, would like some time to relax rather than wait in line for a meal. Perhaps he just wants to rest and not move about. Perhaps he wishes to read or to have a discussion of matters which interest him. Many of these activities are beneficial to the plant where he is employed, for they provide a psychological change of pace and, coupled with the food he will take, will give him renewed energy to take up his task. If he has to wait in line for service in the cafeteria, or if he has to wait until the lunch wagon comes around, some inroad is made into his rest period, so that the factory loses as well as the man.

This, of course, is a strong argument for bringing a lunch from home, even though it may not be well balanced, with the nutritionist always hoping that the other meal will supplement the deficiencies of the home-prepared lunches.

In large factories it seems to be almost impossible to stagger the working hours enough so that no congestion grows up in the lunch-room. This is one of the most difficult problems that the nutritional psychologist has to face in weaning the man from the illy-balanced home-prepared lunch to the well-balanced cafeteria. Until adequate lunch-rooms can be provided and lunch times can be satisfactorily staggered, the rest period will be encroached upon, a harmful procedure. In order, therefore, that the home lunch will be satisfactory, we can suggest the following ideas which are psychologically accepted with regard to its preparation:

1. Whenever possible a disposable cup should be included containing a salad with green or yellow vegetables, prepared as close as possible to the time the man goes to work.

2. The directions for sandwiches in educational literature should be simple and not include a lot of fancy or peculiar fillings. It is surprising what concoctions one finds in leaflets prepared by grocery chain stores and commercial food companies. Nutritionally they may be quite sound. Shredded cabbage filler for a sandwich is probably excellent for the worker's health, but it makes a soggy, unpalatable filling, and most of the workers whom I have interviewed prefer to have something more solid to push their teeth through. Chopped and ground fillings are seldom satisfactory unless they are mostly meat, and some recent food research indicates that the "hidden" nutrients in the food are partially destroyed by the chopping and the grinding.

3. Simple rules can be given, even to the relatively inadequate housewife, suggesting contents for sandwiches, but usually men in Detroit factories whom I have interviewed are given meat sandwiches, which they prefer. Strangely enough, Detroit housewives will buy prepared meat such as bologna, New York ham and other so-called lunch meat, which in the long run makes the sandwich as expensive as if it had been bought from a lunch-room near the plant.

4. In plants where the men must bring their food from home or prefer to do so, the opportunity to buy supplementary supplies of substantial food rather than candy and soft drinks should be emphasized but not over-emphasized. It is quite possible, with meat rationing and the limitation of meat, plus the increase in price which the housewife will have to pay for meat, that men will prefer to buy sandwiches or even full dinners in plants as an economy measure, provided the

cost of the food sold in the plant can be kept low enough.

Because low food prices are an incentive to cafeteria patronage, I feel that one should frown upon the practice that some plants have of sub-contracting the restaurant concession, except in plants so large that a space or labor problem results when they try to do their own feeding. The contractor has a profit which he must make, and has trouble keeping costs low enough without impairing the quality of the food or raising the price so high that his well-prepared and well-balanced lunch is not able to compete in cost with the questionable lunch that is brought from home. Sub-contracting also makes it difficult to supervise the quality of the food and its balance. Some contracts do include a provision for supervision by the plant physician, but I know of only two in this industrial area, and in at least one of these the physician does nothing except supervise the cleanliness of the place and does not consider the food balance or quality.

The psychologist recognizes the fact that men do not necessarily eat what is good for them. Their emotions, habits and training interfere with the selection of articles of diet which might be good for them but which they do not like. We often have to go back into an individual's childhood to see why he rejects a certain article of diet. Sometimes this comes from training, sometimes from family tradition. There are innumerable psychological reasons, but the plant physician cannot at this time go into the individual's personal likes and dislikes.

He must, if he is to supervise the nutrition of his employees, provide the opportunity for those who eat under his guiding eye an incentive to select a properly balanced diet. What one group of employees will eat may differ widely from that which another group of employees will demand if they are to eat in the plant lunch-room.

There are some factors that the physician can take into consideration without an unjustifiable expenditure of time. Perhaps he will need to make a survey of the type of employees that he has. Perhaps he will have to have an observer on hand during meal times to see what is liked and what is disliked. This is a common practice in restaurants and lunch-rooms, and careful supervision of discards, refuse and left-overs serves as a relatively good guide as to what those who are eating in the restaurant like and dislike.

A certain number of other employees will be inclined to eat the lunch-room food, but sometimes a certain group of employees will stick to the lunch-room while food to the taste of larger groups will not be present to induce them to purchase at the plant.

Some aspects which must be taken into consideration so far as food habits and likes and dislikes are concerned are:

1. SEX: Women do not like the same articles that men do. A man sneers contemptuously at a salad of pears, cottage cheese and lettuce which is the *piece de resistance* in a restaurant which caters to women. Men also complain that the portions served to women are not large enough to give them a feeling of satiation, so that men must not only be given a more bulky diet but it must also run more largely toward staples than the menu given to the women. The appearance of food is more significant to women, who are more responsive to esthetic feelings. Highly colored foods, green and red, and, of course, salads and fancy desserts, are more apt to appeal to women than to men. On the other hand, a large substantial helping of meat and potatoes which would be pleasing to a man might actually destroy the appetite of a woman.

2. SOCIAL BACKGROUND: The social background of the worker is indeed an important factor to be considered by the psychologists who wish to use their craft to get the employee to eat, for the psychologist recognizes that eating traditions pass from father to son for many generations; that individuals, even American-born whose parents are foreign-born and who are well adjusted into their homes, prefer the foreign foods cooked by their mothers to American-type foods which they get in restaurants. From the same standpoint, those executives who have been reared in an atmosphere of relative luxury, who have had substantial meals of the so-called typical American type, cannot be expected to enjoy eating in the same lunch-room where a large number of foreign-born or the sons of the foreign-born demand the types of foods which follow the traditions of their parents. In many of our Detroit plants this factor seems to be gradually disappearing. If there are large numbers of persons who prefer foreign cooking, they are so dispersed in the plants that no specific menu can be provided for them. They do not form a majority or even a large enough number, in many instances, to justify adding special dishes to the menu.

In our local plants there are a large number of persons who were born in the South, who are accustomed to the bizarre feeding methods of the sugar-cane country and the swamps of the deep South, who want their sorghum, pot-likker and other unbalanced specialties. These men sometimes had trouble adjusting when they first came north, but I have had no great number of complaints about their not eating enough after a few months. They soon become adapted to the typical plant menu or bring home-prepared lunches. Most of the complaints I have had are from those who are accustomed to a certain type of cooking at home which differs in detail rather than method from ordinary restaurant cooking, i. e., those who have been reared on rare roast beef sometimes object to the over-done beef which they are served in company restaurants. It is almost impossible to cater to such differences.

Certainly in those plants where a certain type of social background predominates, as, for instance, a certain plant in the Detroit area where the predominant worker is either Polish born or of Polish descent, foreign-type articles of diet can be provided.

There is one further thought on the subject that has been found worthy of the psychologist's interest, and that is the rejection of certain foreign articles of food by second generation Americans, who, giving up the old-world habits of their family, desire as soon as possible to adopt American ways, so that not only do they wear exaggerated American clothes, use the latest slang, "jitterbug," and in other ways reject old-world traditions, but also throw up their hands, if they are Italians for instance, at spaghetti and macaroni; and this is true, too, with the other foreign groups.

3. HOURS OF WORK: The extensive night shifts which are now employed in defense factories offer another problem to the psychologist. In my interviewing of Detroit workers, I find that there is almost no consistency in the way that workers on various types of night shifts arrange their eating. For instance, a man on a midnight to 8:00 shift may wake up at 2:00 in the afternoon, then have the usual breakfast which might be eaten by a man who goes to work for a 7:00 or 8:00 o'clock evening shift. He may have a dinner at 7:00 o'clock and eat a regular supper, such as he would have at 6:00 o'clock were he on a day shift, just before he goes to work at 10:30 or 11:00, squeezing all of his three meals into a period of considerably less than 12 hours.

Some omit breakfast entirely. This is unfortunate, because breakfast is usually a worker's chief source of milk, a valuable "balancer," a fruit juice being perhaps their only source of vitamin C.

Others eat their breakfast, a light meal, when they come home at 9:00 in the morning, wake up at 2:00 and have dinner, and have supper at 8:00 o'clock, approximating their usual daytime eating schedule. These men complain that they sometimes lose sleep, since they only have time to sleep between breakfast and lunch; still others on night shifts eat breakfast just before leaving for the plant; eat a lunch in the middle of the working period; have supper in the morning when they come home from work. It can be seen that balancing the meals of night shift workers is a major problem which is not easy of solution.

The feeding of the children by an overworked housewife enters into the problem of getting meals on to the table which must also take care of her husband's needs. The housewife does want to avoid preparing two sets of meals if possible. On the other hand, the man must have his sleep.

Many night workers complain of loss of appetite merely because it becomes so difficult to adopt new hours of sleeping or a new eating pattern. In some cases the men eat their heavy meals after coming home from work, just before going to sleep, and they complain almost equally that the "heavy" dinner puts them to sleep or keeps them from sleeping. Changing shifts also frequently affects proper ingestion of food.

4. INDUCEMENTS TOWARD A BALANCED DIET: The plant restaurant may offer certain inducements—the psychologist calls them "motivating factors"—for the worker to eat a balanced diet. For example, the price of the main dish may be the same regardless of whether or not the worker takes a salad and fruit, so that in order to get full value he takes this "bonus." A method which has recently been tried with the Detroit school children has been to limit the number of desserts which the child can put on a tray but not to include fruit in the list of desserts. This, I think, offers an incentive to eat fruit, because otherwise the privilege of selecting an extra dish would be lost. There is a certain amount of economy-mindedness here which can be utilized in dealing with workers.

Conclusion

WHILE there is still very much to be learned about psychodietetics with regard to the worker, certain psychological ideas regarding diet are worthwhile for the plant physician to keep in mind. They are:

1. To provide literature in keeping with the mentality and attitudes of the factory wives and women workers with regard to the preparation of meals at home and of lunches which are brought from home.

2. Provision, if possible, for a well-balanced meal at the plant, sufficiently cheap and appetizing to challenge the habit of bringing lunch from home, or

3. If this cannot be done, provide some means of supplementing the home lunch so that the worker will be stimulated to eat the needed food elements which are usually omitted.

4. Take into consideration the various mental factors, such as attitudes, traditions, interests and habits of the workers, in order to provide meals which will appeal to them and which will at the same time carry the nutritive elements that will be most valuable.

As the labor situation becomes more acute, more workers may be thrown back on the lunch box, but it would pay the plant physician to urge that labor-saving devices be brought into the picture rather than abrogate the opportunity to supervise the balance of the worker's diet. If possible the lunch-room should be expanded rather than diminished, its increased use coming from the stimulation of the workers' appetite and a chance for a pleasant meal.

The plant physician, then, although overworked, might well make an additional contribution to the health of his charges by stimulating the actual balance of their diet through psychological means.

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Medical First Aid

—In Common Types of Accidents—

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1. Treatment of Burns

FIRST AID at Scene of Accident.

MINOR BURNS: In cases of minor burn injury the affected part may be covered with a sterile dry dressing. No attempt should be made to remove dirt or adherent clothing prior to the application of the dressing. If sterile dressings are not readily available the patient may proceed directly to the plant medical department, taking care to avoid further contamination of the burned surface.

SEVERE BURNS: If at all possible the first aid treatment of cases of severe burns should be supervised by a physician. The burned area should be immediately protected from contamination by the application of a sterile covering. If the burn is very extensive the patient may be wrapped in a sterile sheet, either dry, or, if facilities permit, wrung out in a warm sterile saline or sodium bicarbonate solution. The physician may advantageously administer at this time morphine in a dose twice as large as would be employed preoperatively. Transportation to the plant medical department should be accomplished with the minimum of disturbance to the patient. First aid workers should receive instructions to avoid further contamination of the burned area by contact with the ground, dirty clothing, unsterile instruments, exhaled droplets, woolen blankets and the like.

Burn Shock

THE first efforts of the physician on the patient's arrival at the plant medical department should always be directed toward limiting the degree of shock as much as possible. In burns which are deep or in which a considerable area of the body is affected, shock must be expected. Moreover, too much reliance must not be placed on the external appearance of the burn as a criterion of the degree of shock likely to develop. If morphine has not already been administered, a full dose should be given subcutaneously or even intravenously. For the further relief of pain all raw surfaces should be covered with gauze saturated in sterile saline or sodium bicarbonate solution.

The patient's temperature should be kept within physiological limits by the application of warmth if necessary. As one of the fundamental pathological features of shock is loss of plasma, both from the burned surface and through the hyperpermeable

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Text of DR. CARLISLE'S Lecture, on Monday, November 9, Afternoon Session, Post-Graduate Course in Industrial Medicine, Long Island College of Medicine, November 2-13, 1942.

capillaries into the tissues, replacement of plasma proteins and fluid constitutes the most important single measure in counteracting shock. Whole blood may be used if the burns have been complicated by coincidental hemorrhage. Otherwise plasma is the ideal fluid to use for this purpose. No time should be lost in instituting this form of therapy. For the first transfusion the volume of plasma required may be estimated from the percentage of the body surface affected by the burn.

The volume of subsequent transfusions may be estimated on a more exact basis according to several formulae available based on hematocrit or hemoglobin determinations. All these formulae may be found in the War Injuries Booklet, pp. 25 and 35. Finally the patient's condition can be checked carefully only by the maintenance of accurate records. A complete blood count should be performed as early as possible and repeated as necessary. Hematocrit and hemaglobin determinations should be made frequently. The temperature, pulse, respiration and blood pressure may be checked half-hourly. The urine also should be checked for volume and the presence of albumin or casts.

Definitive Treatment

MINOR BURNS: As a rule these are not accompanied by shock of any severity and the physician may proceed directly to local treatment of the burn.

After removing gross particles of dirt and pieces of adherent clothing, cleanse the area gently with sponges soaked in 50% solution of green soap and hydrogen peroxide. Unroof all blisters and remove dead skin and debris. Flush with copious amounts of warm sterile saline or distilled water and dab dry. First-degree burns may then be covered with sterile ointment, and a pad and bandage applied.

With second and third degree burns debridement may be carried out in a similar manner. In cases of extensive burns accompanied by profound shock, however, the procedure should be delayed until the patient's condition has improved sufficiently. Anesthesia should be employed for extensive debridement. Subsequently one of several different forms of treatment may be employed:

1. If the burn is small the surface may be dusted with sulfonamide powder and a sterile ointment (preferably containing one of the sulfonamides) may be applied as in the first-degree burns.

2. Coagulation therapy may be employed provided the burn is not situated on the face, hands, feet, genitals, or in any of the flexures, or does not completely encircle a limb. Coagulation in such areas is likely to lead to distressing results, such as contractures, sepsis, and tissue necrosis. Coagulation therapy may be carried out by the following methods:

(a) By applying tannic acid spray or triple dye jelly. Coagulation may then be hastened by exposure of the part to heat from an electric light bulb. The area should be loosely covered with sterile gauze and a bandage.

(b) By spraying the burned area with 5% tannic acid, followed by 10% silver nitrate either sprayed or applied with a cotton swab.

3. For burns of the extremities Bunyan's envelopes are useful. These are loose waterproof envelopes which completely encase the injured part. By means of inlet and outlet valves fluids may be pumped through the envelope, thus irrigating the burned area. Electrolytic hypochlorite has been largely used as the irrigating fluid.

4. Other dressings which may be employed in the treatment of burns in situations not suitable for coagulation therapy include:

(a) Vaseline gauze and pressure dressing.
(b) Sterile, normal saline.
(c) 20% sulfathiazole ointment in an aquaphor base.
(d) Glycerin-sulfonamide paste.
(e) Cod-liver oil ointment.

II. Eye Accidents and Injuries

LAY First Aid Treatment at the Scene of the Accident.

1. When an irritant chemical has entered the eye, the first objective should be the immediate removal of the offending agent from the skin and conjunctival sac, which can best be accomplished by *immediate* irrigation of the eye with copious quantities of clean running water. The patient should then be sent directly to the medical department.

2. Foreign bodies entering the eye, if not having chemically irritant properties or not producing a burning sensation, should not be touched at the scene but the patient should be sent directly to the medical department. If there is an irritant reaction or a burning sensation from the material, the patient's eyes should be flushed with water at the site of the accident.

3. Traumatic injuries should not be touched at the site of the injury but the patient should be sent directly to the medical department.

4. Flash burns or thermic burns of the eye should be sent directly to the medical department.

MEDICAL First Aid and Definitive Treatment in the Plant Medical Department.

CHEMICAL INJURIES:

1. Test reaction of mucous membrane secretions by placing indicator paper in the cul-de-sac. (Litmus paper is poor because a large pH shift is required before a color change from the blue to red or from red to blue occurs. Alkacid test paper or hydrion paper is much better because definite and easily recognizable color changes take place with a pH shift as small as 0.2 of a pH unit. Nitrazine paper is satisfactory for acid burns, but poor for strong alkali burns.)

2. Local anesthetic.

3. Thorough washing of the eyebrows and tegument surrounding the eye in order to remove all residual chemical or foreign particulate matter which may be present. This may be done while the anesthetic is taking effect.

4. Copious irrigation of the eye with saline or distilled water should be immediately instituted.

5. If there is still discomfort after the above procedure, local anesthetic may be again placed in the eye, then followed by irrigation.

6. Definitive Treatment:

A. For Acid Burns:

(1) Buffer solution for acid burns should be instilled over the globe and into the cul-de-sac from an eye-dropper in quantities of 3 to 5 cc. every three to five minutes for 15 minutes. (The glass tube of an eye-dropper holds about 1 cc.) While the duration of this irrigation will depend upon the cause, type, extent and severity of the injury, the irrigation should always be continued until there is a maintained neutral reaction upon testing the secretions in the cul-de-sac. (Note: Most acid burns of the eye are instantaneous and not progressive, and consist essentially in the precipitation and perhaps denaturing of the tissue proteins. The severity of the burn seems to depend upon the pH of the acid, the degree of dissociation, the character of the anion, and, most important, the time that the acid remains in the eye before it is diluted and removed. As a general rule acid burns heal more rapidly and are much less difficult to handle than are alkali burns.)

(2) Local anesthetics: pontocain; butyn; holocaine. Most of these uncomplicated cases require a local anesthetic, an oily lubricant, and some bacteriostatic substance in the cul-de-sac during the first 24 hours. The combined facilities and advantages of anesthetics, antiseptics, and lubricants, are offered in butyn and metaphen or metycaine and merthiolate ophthalmic ointments. (Note: In every burn of the eye a symblepharon may develop if two denuded mucous membrane surfaces are approximated and immobilized. Liberal quantities of these or other ointments, together with twice daily compulsory inspections will prevent many a symblepharon.)

(3) Dark glasses, atropine, eye pads—the advantages to be derived from any or all of these when needed should not be overlooked.

B. For Alkali Burns:

(1) Buffer solution for alkali burns should be instilled over the globe and into the cul-de-sac from an eye-dropper in quantities of 3 to 5 cc. every three to five minutes for *30 to 50 minutes*. (The glass tube of an eye-dropper holds about 1 cc.) While the duration of this irrigation will depend upon the cause, type, extent and severity of the injury, the irrigation should always be continued until there is a maintained neutral reaction upon testing the secretions in the cul-de-sac. (Note: Since alkali burns, unlike acid burns are nearly always progressive, there is a great deal that the first aid, as well as definitive treatment has to offer, and especially does this apply to the benefits that will accrue from the continued irrigations of a milder buffer solution. In many cases it is advisable to keep these irrigations up for one-half hour or more.)

(2) Cold compresses—useful in inflammatory affections of the *conjunctiva*. Edema of the lids and chemosis so frequently seen in these burns may be measurably affected by a small 2 x 2 gauze compress moistened in the cold buffer solution placed over the lids or by the dry method (ice-bag), which as a rule is less painful to the patient if the skin of the face and forehead is protected. Ice should never be applied directly to the lids. (Note: Since strong alkali solutions penetrate deeply into the cornea within a very few minutes a resultant corneal ulcer may be anticipated by the swollen corneal stroma with leukocytic infiltration. Frequently the cornea temporarily becames less cloudy, but on the fourth to eighth day a pannus of blood vessels enters the cornea from the limbus over which the corneal epithelium does not regenerate. In the event the conjunctiva is severely burned and appears white or grey, a symblepharon or corneal lesions including adhesions between the lid and the eyeball may develop.)

(3) Dark glasses, atropine, eye pads as indicated.

C. For Alkaloid Burns:

(1) Sodium thiosulfate (3% solution) or some other specific mild oxidizing or reducing agent instilled over the globe and into the cul-de-sac from the eye dropper in quantities of 3 to 5 cc. every three to five minutes for *30 to 50 minutes*. While the duration of this definitive treatment will vary depending upon the nature of the irritant and the time of exposure, subsequent treatment is essentially the same as for alkali burns. (Note: Alkaloidal reactions are often insidious in their onset, since some produce immediate reactions and others produce signs and symptoms only after a quiescent period varying from four to 24 hours.)

D. Special:

(1) Lime burns. While a freshly prepared 4% solution of ammonium tartrate (reagent grade) is isotonic with lachrymal fluids, it rapidly turns acid upon standing. It is, therefore, advisable to test the solution before and during use. A solution that is over one hour old should not be used.

(2) Lacrimators. Since the gases, vapors, and liquids of lacrimators likely to be encountered as a result of enemy action may produce very severe injuries to the eye, definitive treatment other than the use of a 2% solution of sodium bicarbonate should be obtained from sources affording specific therapeutic measures for these specific chemical war injuries.

SUPERFICIAL Foreign Bodies of the Eye. First Aid Treatment:

The following are the only three first aid measures that the nurse or first aid attendant should be allowed to undertake in the removal of foreign bodies in the cul-de-sac or on the eye:

1. Rubbing the unaffected eye in an effort to produce lacrimation which in turn may flush the foreign body from the eye or cul-de-sac.
2. Irrigation of the eye with clean water, physiological saline, boric acid solution or some satisfactory collyria.
3. Lightly passing or rolling across the bulbar or tarsal conjunctival surface a moistened cotton pledget. If this manipulation does not remove the foreign body then the services of a physician should be obtained.

It is of tremendous importance that first aid routines do not include any more vigorous actions than the above. Unless measures are taken by the physician, undue and unwarranted destruction of tissue as well as contamination and resultant infection frequently result from the ministrations of well-meaning individuals with unskilled and untrained hands.

One frequently overlooked step in the treatment of foreign bodies in the eye is the prevention of a similar recurrence by removing from the eyelashes and eyebrows all particles which may have accumulated there. In many instances these are the same type of particles that were removed from the eye. Therefore, the cleansing of the eyelashes, eyebrows, and skin of the orbit is of considerable importance.

When a local anesthetic is used to aid in the removal of a foreign body on the eye it is extremely inadvisable to allow the patient to leave the dispensary without first placing a pad over the eye, if the patient leaves before the effects of the anesthetic have worn off. Frequently marked damage results from allowing the patient with an anesthetized eye to return to the environment which has given him a foreign body. He could detect the foreign body previously, but now he is unable to feel it because of the anesthetic.

Definitive Treatment

IT IS of the utmost importance that the patient be placed in a satisfactory position which will allow for perfect comfort and relaxation on the part of the patient as well as on the part of the physician.

These objectives can best be accomplished by the following:

1. Patient in reclining position.
2. Local anesthetic, butyn or pontocaine.
3. The physician sitting at the patient's head with elbows resting on the cot, with his hands and face in such a position that he is looking and working from above downwards over the globe of the patient's eye. (Note: There is much less danger of causing damage to the eye in this position than in having the patient sitting in a chair and the operator working from a sitting position in front of the patient. Working from in front, a slip of the surgeon's instrument is almost certain to result in puncturing the patient's

eye; working from above, a slip is only likely to give a tangential injury of much less danger.)

4. No patient should be allowed to leave the dispensary after a foreign body has been removed from the bulbar conjunctiva without first placing onto the bulb a couple of drops of 2% sodium fluorescein solution or aqueous mercurochrome. Frequently in the cases where there is a history of a foreign body but no foreign body is found, fluorescein instillations will reveal scratched surfaces of the cornea which are missed without the staining aid.

The use of some lubricant with or without some local anesthetic and/or antiseptic, together with an eye dressing should be continued until healing is complete as can be determined by the failure of the cornea to stain with a 2% sodium fluorescein solution or aqueous mercurochrome.

Penetrating Foreign Bodies

THESE are by and large the most troublesome of eye injuries so far as permanent disability is concerned. The very best form of treatment for the industrial physician to use in the majority of instances is as follows:

1. Eye pad and head bandage.

2. Send immediately to a hospital for care by an eye specialist and for removal under the exacting ritual of the operating room if additional measures are needed. (Note: While a firm bandage over one eye will frequently eliminate friction between the eyeball and eyelid, if immobilization of one eye is required, *both* eyes must be bandaged.)

Corneal Abrasions

CORNEAL abrasions and deep lacerations expose the delicate nerve fibers as well as constituting a portal of entry for contamination. The result is inflammation or infection which may end in a corneal ulcer, if immediate and proper definitive treatment is not instituted.

2. After examination following fluorescein staining, one should adopt the general rule of referring the patient to a specialist when the lacerations are deep and especially over or near the pupil. (Note: If a local anesthetic is needed, aqueous solutions should be employed since oily substances in the eye before referring the patient to an ophthalmologist interfere with further examination.)

Alkali Burns

DEFINITIVE Treatment.

Additional routine measures in the treatment of alkali burns of the eye include:

1. Instillation of atropine sulfate—1%, ophthalmic ointment or solution (the solution when irrigations, the ointment when oil is used).

2. Careful twice-daily inspection for adhesions between the lids and the globe. (A glass rod—cocktail stirrer—is very useful in breaking these adhesions.)

3. Liberal quantities of boric acid ointment should be placed between the globe and lid to act as a barrier and serve in further prevention of adhesions.

4. Any discharge should be removed from the cul-de-sac by the instillation of a mild silver protein 10% solution followed by copious irrigations of boric acid.

5. Sulfathiazole ophthalmic ointment 5% is a very useful agent in preventing secondary infections. (Contra-indication is the frequently occurring irritation following the use of this drug in the eye.)

6. Butyn and metaphen ointment rapidly acting local anesthetic.

7. Holocain (phenacaine) 1% should be used rather than cocaine which should not be used in view of the fact that it delays healing, softens and swells the cells and produces further damage to the epithelium.

Acid Burns

AS A GENERAL rule acid burns are not progressive and secondary treatment is largely symptomatic.

1. Boric acid and ophthalmic ointment, together with an eye pad, or the instillation of sterile castor oil, cod liver oil or olive oil will alleviate the symptoms which usually accompany acid burns, as well as promote regeneration of the corneal epithelium.

2. Any discharge should be removed from the cul-de-sac by the instillation of a mild silver protein 10% solution followed by copious irrigations of boric acid.

3. Butyn and metaphen ointment (rapid but short-acting local anesthetic).

4. Metycaine and merthiolate (slower than butyn but more prolonged action).

5. Holocain (phenacaine) 1% should be used rather than cocaine which should not be used in view of the fact that it delays healing, softens and swells the cells and produces further damage to the epithelium.

III. Preliminary Treatment of Chemical Irritation of the Skin

IT IS understood that preventive measures including showers, wash-rooms and changes of work clothing have become part of the workers' equipment and that what follows concerns cases where these measures have been instituted. The subject comprises chemical burns and mild-to-severe chemical irritations. The irritations include those due to so-called primary skin irritants as well as those considered allergens.

The immediate first aid treatment of chemical irritations of the skin is essentially the same in all cases, namely, copious and continued flushing with water.

(a) Availability of emergency showers imperative.

(b) Prompt removal of contaminated clothing essential.

Preliminary treatment of chemical burns consists of:

(a) Removal by flushing with water at plant medical department. (Note: Organic chemicals require consideration separate from most inorganic chemicals, since many are oil soluble and not water soluble. Alcohol and ether are first agents to be applied for cleansing. Since they are good solvents for many substances they may be considered of widest utility.)

(b) If the cause is a known acid or alkali, neutralize by:

(1) Application of solution as wet compresses, or

(2) Immersion in solution.

(3) Application of mild alkaline ($NaHCO_3$) paste or boric acid paste.

(c) If nature of chemical is unknown, test reaction of burn area and apply neutralizing medication as determined by this test.

(d) If known organic chemical of recognized toxic properties, neither acid nor alkali:

(1) Thoroughly cleanse area or whole body as necessary with

(a) alcohol and ether;

(b) apply mild oxidizing or reducing agents—sodium thiosulfate or sodium perborate.

(2) Place in bath containing these if areas are extensive.

(3) Or cover areas with compresses saturated with solutions, removing frequently. (Note: Preliminary cleansing should include scrupulous care in removing solid particles from scalp, eyebrows and other hairy areas.)

(e) In some cases subsequent treatment will be

essentially the same as for a thermal burn, in others continued use of neutralizing agents for 12 to 24 hours or of oxidizing or reducing agents in the form of wet dressing is indicated.

(f) In certain cases, as with aniline and its homologues, dimethyl sulfate, and other substances which rapidly penetrate the skin and produce methemoglobin, demand definitive treatment for the methemoglobinemia. This consists of:

(1) Immediate use of oxygen and

(2) blood taken for methemoglobin determination;

(3) through the same needle give 50 cc. of 50% solution of glucose solution;

(4) thorough body cleansing (especially hands, nails, feet) which is of equal importance, should be carried out simultaneously,

(5) plus 0.1 gm. of methylene blue, if desired.

Irritations:

WHETHER due to primary irritants or to allergens first treatment is:

(a) Thorough cleansing of affected part.

(b) Soaking part in suitable oxidizing or reducing agent for 20 to 30 minutes or longer.

(c) Application of continuous wet dressing of same for 24 hours—no longer than 48 hours.

(d) Application of radiant heat after 24-hour period (electric lamp cradle for 30 minutes or more). The importance of the subsequent drying period cannot be emphasized too strongly.

(e) Application of dry protective dressings or of a bland oil for 12 to 24 hours.

(f) Repetition of soaks and wet dressings alternating with dry heat until:

(1) erythematous base (usually present) has faded;

(2) vesicular lesions have subsided. (Note: Inspection of part immediately after removing wet dressing often reveals distortion due to hydration of the tissues—condition cannot be properly assessed at this time—debridement of collapsed vesicular lesions and desquamating areas will be incomplete. Change in appearance after drying under heat lamp is striking—completion of debridement at this time. Attention to minute details of the manicure with removal of all overhanging remnants of epidermis of utmost importance. Desquamation in affected areas often follows and may be aided by application of bland oil or mild ointments.)

IV. Bandaging

DIFFERENCES between requirements of industrial patient and usual clinic hospital or private patient must be borne in mind.

1. First objective, as always, to assure patient of best treatment to encourage recovery.

2. In contrast to private patients, second objective in treatment of industrial patient is to return him as soon as possible to useful employment.

3. If circumstances permit, the dressing is constructed to allow free use of the part.

4. If the physician considers rest essential, splinting, a sling, and elevation, are applied to prevent use, since industrial patients will use the part unless physically prevented from doing so.

5. Frequently, to assure the most rapid recovery and return to full efficiency, dressings are designed to prevent the use of the part for 12 to 24 hours or more.

6. Where the lesions may be bandaged to allow use of the part, the bandage or dressing must be applied so that:

(a) it will not come off, and

(b) it will adequately protect the lesion.

7. The requirements for adherence of the dressing are somewhat more rigorous in industrial practice and frequently demand dressings quite different from those used in general practice.

8. Lesions that would ordinarily in private practice require no dressing are covered because of potential re-opening trauma.

9. For workmen doing dirty or wet work occlusive dressings are in order with even minor lesions.

10. The importance of splinting to insure maintenance of absolute rest is not confined to the treatment of fractures.

11. The importance to the patient and to the company of rapid restoration to normal efficiency demands splinting of lacerated fingers in many cases to promote rapid healing.

12. Where wet dressings are to be continuous it is possible in many cases to permit the patient to return to work by encasing the dressing in an impervious mitten.

13. It must be the physician's responsibility to see that the bandage is applied to stay until the patient revisits the plant health department.

V. Summary

ESSENTIAL Procedures in the Treatment of Recent Wounds:

1. If necessary, pack the wound to control hemorrhage.

2. Cleanse the skin thoroughly in a wide area about the wound.

3. Cleanse the wound thoroughly with soap and water.

4. Irrigate copiously with saline.

5. Simple debridement is always indicated in contused lacerations with devitalized tissue.

6. Where extensive devitalization of tissues about a wound has occurred, complete excision of the entire wound is indicated.

7. In both cases excision of devitalized muscle is not complete until:

(a) tissue is of normal color and appearance;

(b) wound bleeds freely on section;

(c) muscle contracts.

8. Irrigate copiously with saline.

9. Liberal application of a sulfonamide to the wound in an amount not to exceed 10 grams per patient. There is no substitute for these procedures!

Drugs, disinfectants and plaster casts are valuable accessory measures but should, when indicated, be used in addition to, not in place of, these measures.

Labor's Attitude

—On Industrial Health Measures—

LOUIS HOLLANDER,
Vice-President, Amalgamated Clothing Workers of America

ORGANIZED labor is vitally concerned with all questions relating to the health of American workers. It is at all times a part of the job of organized labor to take and to foster measures to safeguard and improve the health of its membership. This is one of the essential services which trade unions are organized to perform.

Today, as never before, the health of our working population has become a matter of immediate and pressing concern not only to organized labor but also

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to the whole nation. The acute shortage of manpower which has already manifested itself in a number of areas and which will soon become critical throughout most of the nation has made the problem of reducing absenteeism because of illness essential to the maximum utilization of national manpower which the war effort requires. At the same time, the extension of hours of labor and the more intensive effort which war production requires from the whole working population have increased the danger of illness and occupational injury.

The brief and occasional work stoppages which have occurred since labor made its no-strike agreement immediately after Pearl Harbor have been over-publicized and over-dramatized by the press and employer associations as a real hindrance to war production. Yet, little or no attention has been given in the same quarters to the loss of manpower resulting from poor health. Nevertheless, as you all doubtless know, the loss of man-days from this latter cause is far in excess of that resulting from the first. Recent government statistics show for the year 1941—even before Pearl Harbor—17 times as many man-days were lost as a result of accident or illness than because of strikes.

In the light of the needs of the war situation, the type of discussion which you are having as a part of this course in industrial medicine could not be more timely. As a representative of organized labor, I appreciate the opportunity which you have accorded to me to discuss the question of labor's attitude toward the problems which you have under consideration. It will not be my purpose here to discuss in detail problems of the formulation and administration of a program of industrial medicine but rather indicate, in broad and general terms, labor's attitude toward the whole question.

LABOR views the whole matter of a worker's health as, fundamentally, an economic problem. The efficacy of even the most perfectly planned and most perfectly administered system of industrial medicine and industrial hygiene is necessarily limited by the economic level of men and women who are the potential patients of the industrial physician. I need not cite to you the statistics showing the coincidence of a high rate of mortality and morbidity with a low income level. I am sure you all recognize that any program of industrial hygiene must necessarily remain inadequate so long as a large proportion of our working population receive incomes at or below bare subsistence levels and are denied the means to provide themselves with adequate diets, decent housing and decent clothing. To the extent, therefore, that trade unions improve the wages, hours and working conditions of their members and raise their living standards, they are making a fundamental contribution to the improvement of the workers' health and to safeguarding this invaluable national asset.

Though I have no statistics to offer in substantiation, I am satisfied, for example, that in my own industry, the men's clothing industry, the revolution in working conditions which has occurred under the auspices of the union in the last 30 years has made a most material contribution to the health of the clothing workers. The reduction in working hours from 70 to 36 a week, the great improvement in earnings, the eradication of homework, the elimination of unsanitary and unhealthful factory conditions have all been far more important factors in raising the level of the clothing worker's health than the health and welfare schemes devised by the employers in the teens and twenties in an effort to halt organization progress.

All of this is not, of course, to say that, as trade unionists, we disregard or minimize the need for an adequate health program in addition to the fundamental economic approach outlined above.

We have in the past sometimes been suspicious of programs of industrial medicine launched and administered by individual employers. Too often such programs have been part and parcel of effort by employers to hinder the organization of their workers into trade unions. These plans have sometimes gone hand in hand with the familiar pattern of company unions, group insurance and other paternalistic devices designed by employers to persuade their workers that they have nothing to gain from union organization. Too often such plans have been devised in an attempt to substitute medical care for the wage, hour and working condition improvements which would result from union organization.

It would be unfair, of course, and it is not my intention to make any blanket condemnation of employer programs for industrial medicine or to attempt to belittle their usefulness in safeguarding the health of workers. At the same time I think it is true that such plans, sponsored on the initiative of individual employers, can never give us the broad, over-all type of program that is essential to the conservation of the health of the nation's workers. Such plans, at best, will be limited to a relatively few large employers and will be necessarily motivated by the desire of these employers to cut production costs by reducing illness and absenteeism.

TRADE unions, too, have sponsored a number of health programs for the benefit of their membership. Ordinarily, these include a program of low cost medical service accompanied by periodic medical examinations for the entire membership. Our organization, the Amalgamated Clothing Workers of America, has approached the problem from a slightly different point of view. Recognizing the question to be largely economic, we have recently entered into agreements with employers representing 95% of the men's clothing industry in contractual relations with us, providing for a contribution by each employer equal to 2% of its payroll to a life and health insurance fund. This fund, administered by a joint committee of trustees chosen from the union and the employers, will be used to purchase policies of group sickness and accident insurance covering our membership and assuring them that, in the event of illness, they will be provided with a minimum income and thus better equipped to obtain the necessary medical care and attention.

Such a plan as ours which, in effect, levies a tax on industry to finance a health program, is possible only in the case of a union like ours which is in contractual relations with substantially all of our industry. For obvious competitive reasons, a union would be in a poor position to place such a tax upon only one portion of an industry, conferring upon the unorganized portion an unfair competitive advantage.

We of the Amalgamated regard such a provision as we have as only a stop-gap, pending national legislation. Our position is well indicated by a provision in the contract which will suspend the 2% contribution upon the enactment of Federal legislation exacting an equivalent payment from employers for the purpose of providing equivalent benefits.

The health of our working population is a most important national asset. Its preservation and improvement is therefore primarily a national function. Just as the problem of unemployment is a national problem which was finally met by national legislation placing

all employers on an equal footing and burdening them with equal responsibility, so, too, labor believes that the problem of our national health can be adequately handled only by Federal legislation which imposes upon all employers an equivalent responsibility and which provides disability insurance and low cost medical service for all workers.

I know that objections have been voiced by the organized medical profession to certain types of Federal health programs. It is not my purpose here to enter that discussion or to debate the merits, from a physicians' point of view, of any particular proposal for a Federal health program. I am confident, however, that there is enough ingenuity among us to work out an adequate Federal health and medical care program which, while doing full justice to the needs and desires of the physician, will at the same time adequately provide for the health requirements of the workers.

Reduced Temperature Anesthesia

—For Surgery of Trauma: Case Report—

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ONE of us (J.M.D.), while resident at New York City Hospital on the surgical service of Lyman Weeks Crossman, enjoyed the opportunity of following the initial work on reduced temperatures in surgery.[1] In the original work, gangrene of the lower extremity — either diabetic, arterio-sclerotic or embolic in nature—served as an indication for amputation. The most recently published series[2] includes a case of chronic osteomyelitis. However, there has been no cited instance of crymoanesthesia for trauma as might occur in industrial accidents. McElvenny did pack both thighs in ice following traumatic amputation, but subsequent operation was performed under gas anesthesia.

We wish to present a case of traumatic amputation successfully treated according to the principles laid down in the original report of Dr. Allen.

From the service of Moses-Taylor Hospital, Lackawanna, New York.

F. K., a 64 year old white male, suffered a severe, crushing injury with traumatic amputation of the right foot just above the ankle on the morning of August 16, 1941. Within a few minutes, a tourniquet was applied about the mid-thigh level, and morphine sulphate, grs. ¼, injected subcutaneously. On admission, he was cold, clammy, dyspneic, and complained of pain in the leg. Another injection of morphine, grs. 1/6, was given, the foot of the bed elevated, and an infusion of normal saline started. Despite treatment, the pulse grew weaker and more rapid and one hour later was 130/minute. Bitter pain persisted and a third injection of morphine, grs. ¼, was given. R.B.C. 3,610,000; Hgb. 74% (Sahli).

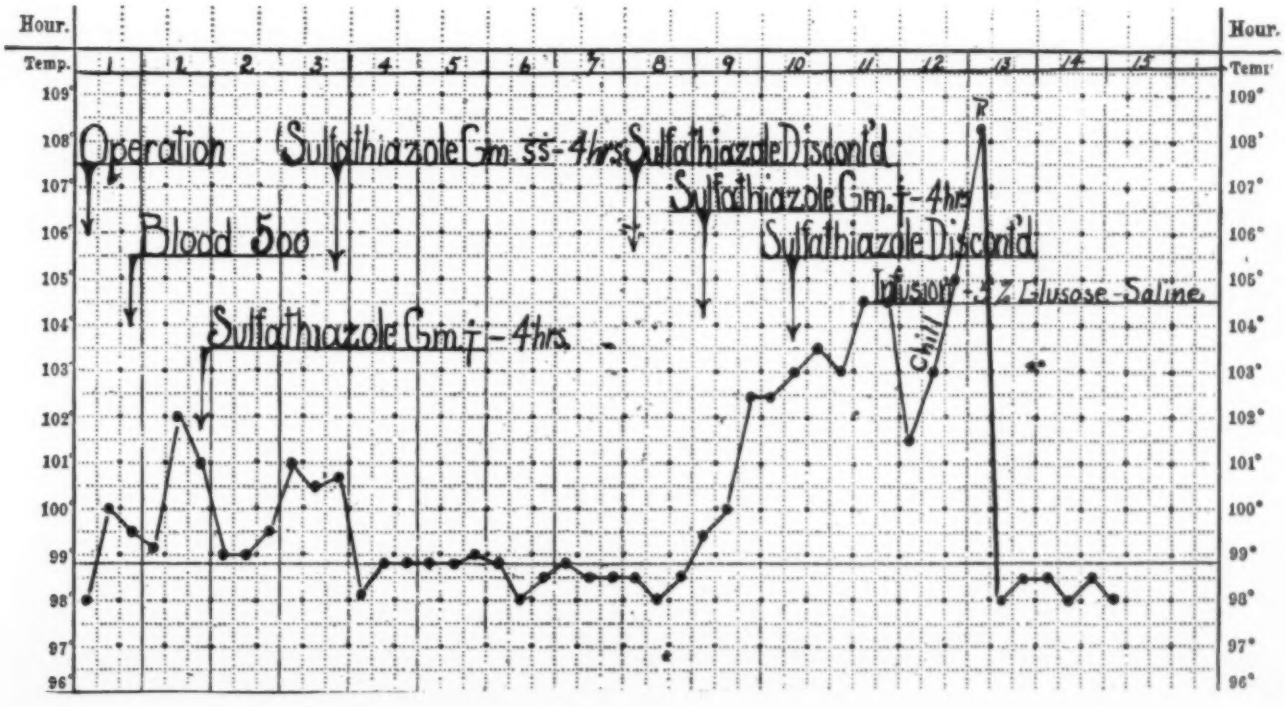
The foot and ankle had been torn away at the time of the accident, and the stump presented as a badly comminuted fracture of the tibia and fibula with the soft tissues crushed and torn to a level a little more than a hand's breadth below the knee joint.

The extremity was packed in cracked ice. Within 15 minutes the patient felt greatly relieved, no longer complained of pain, and was dozing at intervals. The pulse improved quickly.

Refrigeration was continued for about two and three-quarters hours, after which time he was taken to the operating room and the leg amputated, as advocated by Ruggiero, about five inches below the knee joint. Considerable tension was encountered in approximating the fascia and skin edges. No discomfort was experienced during the operation, and the patient slept through part of the procedure.

Post-operatively, he received 500 cc. of citrated blood and immediately took fluids by mouth. Sulfathiazole in one gram doses was given every four hours for the first week. On the ninth post-operative day the patient complained of severe pain in the stump and there was a slight rise in temperature. Sulfathiazole was resumed. Examination of the stump showed the anterior flap to be reddened where it was tightly drawn over the end of the tibia. The sutures of this part were removed and thick, dark, blood exuded. The temperature continued to climb and when two days later it reached 105, the sulfathiazole was discontinued. That evening the temperature reached 108 and then fell precipitously to normal. W.B.C. 6200; polymorphonuclears 80%; R.B.C. 3,500,000; Hgb. 50%.

Thereafter, the course was uneventful. The temperature remained within normal limits. The redness of the anterior flap subsided and a dry eschar about 3 cm. in diameter developed over the tibial stump. Some of the muscle tissue of the lateral part of the stump became necrotic and was



cut away. Upon separation of the eschar, clean granulations developed and the remainder of the wound healed nicely. The patient was discharged on the thirty-sixth day on crutches.

He was followed for seven weeks in the clinic. The granulating area was slowly becoming epithelialized, but pain was constantly present. There was also 50% limitation of flexion in the knee joint. He was readmitted on November 10, 1941, and a second amputation performed through the lower thigh. Crymoanesthesia, was again employed, the tourniquet being applied at the mid-thigh level and refrigeration with cracked ice continued for two hours. The technique of amputation was of a modified Callender type as described by Pearl.[4] Silk was used throughout.

The patient tolerated the operation well and was returned to the ward in time to enjoy his noon meal. The post-operative course was uneventful except for some pain which was relieved by aspirating about 20 cc. of blood from the stump on the sixth day. There was no appreciable elevation in temperature during this convalescent period. He was sent home on crutches on the fifteenth day, the stump having healed by primary union. At present, the stump is well formed and he wears an end-bearing prosthesis without any discomfort.

No absolute explanation can be offered for the fever which took place on the eleventh day, but it is our opinion that it represents a toxic, sulfa drug reaction.

There is no doubt in our minds that the closure of the stump of the original operation was too snug, but we did not feel that we were justified in proceeding with a supracondylar operation at that time.

It would appear that refrigeration anesthesia in traumatic injury is indicated only when the exact line of amputation is evident prior to the application of tourniquet and ice. Where the injury to the extremity is of a crushing nature involving the digits, hand or foot, a general anesthesia is preferred, for here careful debridement under a constant stream of saline solution oftentimes results in a more conservative procedure with a more useful extremity.

The outstanding features of this case were: (1) the prompt relief of pain; (2) rapid improvement of the shock state; (3) complete anesthesia; (4) absence of unfavorable post-operative reaction.

SUMMARY. Surgical anesthesia of a crushed limb was obtained by simply using a tourniquet and packing the limb in cracked ice. A case-history is presented.

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Foot Symptoms

—Instruction and Exercises for Their Relief—

PETER CYRUS RIZZO, M.D., F.A.C.S.,
New York City

TODAY women have taken a big hand in industry and they are doing many of the jobs formerly performed by men. Men, because of the fact that they were brought up with the necessity of homely shoes and comfortable shoes, to go with their jobs, had very few complaints of leg weariness, foot soreness and related symptoms. But this situation is changed. When we see some of the shoes worn about a factory it makes us feel that a health program for the woman worker should stress the importance of being "well shod." Moccasins, sandals, and high-heel shoes do not have the supportive and required essentials for sustained comfort. Fatigue is earlier and pains are frequent, especially if the worker has to stand on a hard concrete floor where the only "give" is in the shoe or the foot. It is for this reason that advice should be given to all workers regarding proper shoes and methods of relieving whatever symptoms might arise.

Foot exercises are very important. These should include the proper stance and proper walking posture so as not to cause foot strain. Simple adjustment of shoes should also be given consideration. Among these one should use scaphoid pads. These are of great help where there is pronation present, as such pads help to support the long arch. Metatarsal support is also of considerable aid. The most expedient manner of applying this is by means of a metatarsal bar. Such a bar is simple to attach, and the most important feature of it is that it is placed on the outside of the shoe and does not take up any space inside the shoe as do pads or plates. A proper shoe need not be an expensive one, but one that gives heel support for balance, a semi-flat heel which might be as high as 1½ inches, but this heel should be quite large and should have a broad base.

A good support of the forefoot is indicated, and for this purpose the oxford tie is prescribed. Toe room, so that the toes will not be cramped and so that they will have a little room to swell after a day's standing, is also an essential feature.

The following is a list of instructions and exercises I have used. They are not time consuming and can be done easily and would pay dividends. The purpose of these exercises, as one can readily see, is to create proper foot posture, strengthen the long arch and correct metatarsal symptoms. Contrast soaks are definitely relieving after a hard day's work.

Exercises for Weak Feet

EXERCISES are of no use unless proper foot posture and proper walking are practiced and maintained.

The proper stance is with feet parallel so that a line dropped from the middle of the knee would pass through the second toe. The weight should be distributed equally on the heel, the ball of the first toe and the ball of the fifth toe. The arch of the foot should be raised. This posture is to be practiced before a mirror until no effort is required to assume it.

When walking try to keep the same foot posture as in standing. Be conscious of the position of your feet and also of your arch.

The bony structure of the foot is held together by ligaments and muscles. Stretching of some of these muscles and ligaments and contracture of others are responsible for the usual foot ailments.

To help build up the proper muscles of your feet certain definite exercises must be performed.

EXERCISES:

1. Cross knees. Slowly rotate the foot in a circular motion towards the centre of the body. Do this exercise as much as possible during the day, at least 25 times with each foot.

2. Stand on the outer borders of your feet with the toes clawed. Walk with the feet in this position. This exercise should be done without shoes, and would not take up much of your time if in the preparation of your toilet you put on your shoes last in the morning and take them off the first thing at night.

3. Stand with feet flat on the floor, knees straight, and place the extended hands against the wall. Keep the feet flat on the floor and the knees straight and bring the body forwards until you feel a drawing and painful sensation in the muscles of the thigh and calf.

This same exercise can be done in the course of ascending a flight of stairs in the following manner:

Hold on to the bannister and have only the balls of your

feet on the step. Let your heel sag downward and incline the body forwards keeping the knees straight and body in a straight line.

4. Stand on a book or flat surface so that the toes and ball of the foot overhang the edge. Bring toes down towards floor slowly. Do this 25 times.

5. Soak the feet in hot water for two minutes; follow this with soaking under running cold water for one minute. Repeat this procedure and then briskly massage the feet with cold cream or cocoa butter.

Congress on Industrial Health

—Abstracts of the Papers given at the Fifth Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, Chicago, January 11-13, 1943—

Reported by

C. O. SAPPINGTON, M.D., Dr. P.H.

REPLETE with reports from various types of medical endeavor and public health relationships in industry, the Fifth Annual Congress on Industrial Health offers an imposing amount of material for serious consideration.

Among the features were the experiences of the men sent abroad as consultants in industrial medicine and hygiene; a symposium on the health problems associated with the changing character of the work force; a discussion of common infections in industry; a symposium on medical relations and workmen's compensation; reports on industrial medical practice and the emergency; a symposium on rehabilitation; a symposium on nutrition in industry; and the Chicago Conference on the Health of Industrial Workers, the afternoon and evening of the last day.

This year for the first time there were a number of educational exhibits, presented by the A.M.A. Councils on Industrial Health, on Medical Education and Hospitals, on Physical Therapy, on Foods and Nutrition, on Pharmacy and Chemistry, and also by the Bureau of Health Education and various other organizations, including U. S. Public Health Service, U. S. Bureau of Mines, Office of Civilian Defense, and a number of insurance companies.

Monday Morning

DR. STANLEY J. SEEGER, Chairman of the Council on Industrial Health, officially opened the program.

A critical point has been reached in our industrial health endeavors; new problems present themselves with the shifting population, and the resultant housing and transportation situations, and new complications occur daily. The medical character of these problems indicates the need for guidance of a medical type as basic.

The American worker is superior in many respects to his European neighbors. Morover, the authorities are better able here to take up the slack in the program at the present time.

An important principle in the working out of our industrial health problems is the establishment of state and county committees on industrial health, which serve admirably for the development of problems and their solu-

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MONDAY Morning—DR. SEEGER, presiding. Report of the Council on Industrial Health—STANLEY J. SEEGER, M.D., Chairman.

The Physician and Industrial Mobilization—PAUL V. MCNUTT, War Manpower Commission.

Further Notes on Preventive Medicine in Industry—JOHN FOULGER, M.D., Haskell Laboratory of Industrial Toxicology.

Employee-Management Cooperation for Industrial Health—WENDELL LUND, Labor Production Division, WPB.

Procurement and Training of Professional Personnel for Industrial Health Service— C. D. SELBY, M.D., Chairman, Sub-committee on Industrial Health and Medicine, ODHWS.

MONDAY Noon—Industrial Hygiene Abroad—W. A. SAWYER, M.D., Medical Director, Eastman Kodak, and W. P. YANT, Mine Safety Appliances Company.

MONDAY Afternoon—DR. GARDNER, presiding. Ocular Signs of Industrial Poisoning—ROY S. BONSIB, Standard Oil (New Jersey).

Symposium: Common Infections in Industry.

Newer Concepts in the Prevention and Treatment of Wound Infections—AUSTIN E. SMITH, M.D.

Recognition, Prevention and Essential Treatment of Occupational Dermatitis—HARRY FOERSTER, M.D.

Respiratory Infections in Industry—CHESTER S. KEEFER, M.D., Boston University School of Medicine.

Program of Immunization for Industrial Workers:

1. Vaccines and Serums: Indications and Procedure—JAMES P. LEAKE, M.D., U.S.P.H.S.

2. Problems of Organization and Administration—LEVERETT D. BRISTOL, M.D., Health Director, Am. T. & T.

MONDAY Evening—State Societies Dinner and Round Table, DR. LANZA, presiding. Local Organization for Industrial Health Services. Recent experiences in Post-Graduate Industrial Medical Education.

TUESDAY Morning—DR. DRAPER, presiding. Industrial Physical Examinations— HARVEY BARTLE, M.D.

The Toxicity of Military Explosives—LEMUEL C. MCGEE, M.D., Hercules Powder Company.

Optimum Hours of Work—JAMES G. TOWNSEND, M.D., National Institute of Health.

Symposium: Health Problems in the Changing Character of the Work Force:

Women in Industry—H. C. HESSELTINE, M. D.

Prehabilitation—WILLIAM A. SAWYER, M.D.

The Older Worker—ANTON J. CARLSON, M.D., University of Chicago.

TUESDAY Morning—DR. HUSSEY, presiding. Symposium on Medical Relations in Workmen's Compensation:

Report of the Committee on Workmen's Compensation—RAYMOND HUSSEY, M.D., Chairman.

Workmen's Compensation: The Shape of Things to Come—HENRY D. SAYER, Compensation Insurance Rating Board.

Control of Medical Testimony: The Minnesota Plan—ERNEST M. HAMMES, M.D., Minnesota State Medical Association.

Allergy: Its Place in Compensation Procedure.

Practical Problems in Framing Occupational Disease Legislation.

TUESDAY Noon—Luncheon—Value of Qualified Physicians in the Personnel of Compensation Commissions—VERNE A. ZIMMER, U. S. Department of Labor.

TUESDAY Noon—Luncheon and Round Table—Experiences in Setting up a Visual Program for Safety and Production in a War Plant—H. GLENN GARDINER, M.D., Medical Director, Foote Bros. Gear & Machine Corp.

TUESDAY Afternoon—DR. LEGGE, presiding. Symposium: Industrial Medical Practice and the Emergency Correlation with Community Emergency Medical Service—WARD L. MOULD, M.D., U.S.P.H.S.

The Health and Safety Program of the U. S. Maritime Commission and the U. S. Navy in Contract Shipyards—PROFESSOR PHILIP DRINKER, Harvard School of Public Health.

Symposium: Streamlining Industrial Medical Service. How to Get Along with Less Help: (1) Legitimate Shortcuts in Routine Service. (2) Can We Secure and Train Technical Assistants for Certain Routine Industrial Health Procedures?—EDWARD C. HOLMBLAD, M.D.

Outline of Procedure for Nurses in Industry—ORLEN J. JOHNSON, M.D.

Putting Your Medical Records to Work—M. H. MANSON, M.D., Medical Director, New York Telephone Company.

Processing Industrial Physical Examinations—FRED B. WISHARD, M.D., Medical Director, Delco-Remy Division, General Motors.

Resuscitation: A Review and Demonstration—HART E. FISHER, M.D., Medical Director, Chicago Rapid Transit Company.

TUESDAY Afternoon—DR. HUSSEY, presiding. Symposium on Rehabilitation:

Recent Developments in Connecticut—JAMES H. BIRAM, M.D., Medical Director, Colt's Patent Fire Arms.

Psychiatric Problems in Rehabilitation—ALFRED P. SOLOMON, M.D., University of Illinois College of Medicine.

Physical and Occupational Therapy in Rehabilitation—JOHN S. COULTER, M.D.

The Future of Rehabilitation—TERRY FOSTER, U. S. Office of Education.

WEDNESDAY Morning—DR. MCLESTER, presiding. Symposium on Nutrition in Industry:

Criteria for the Evaluation of Nutrition Experience in Industry—FRANKLIN C. BING, PH.D.

Progress in the National Program on Nutrition in Industry—ROBERT S. GOODHART, M.D., Technical Adviser, ODWHS.

Current Nutritional Activity in Industry—GEORGE R. COWGILL, PH.D., Yale University School of Medicine.

WEDNESDAY Noon—Can We Eat Our Way to Health or Sickness?—MORRIS FISHBEIN, M.D., Editor, J.A.M.A.

WEDNESDAY Afternoon—DR. SLOBE, presiding.

The Urgent Need for Better Local Industrial Health Organization—CARL M. PETERSON, M.D.

Why Do Employees Stay Away from Work and What Can We Do About It?—C. D. SELBY, M.D.

How the Small Plant Can Conduct a Health Program—MILTON H. KRONENBERG, M.D.

Problems of Employing the Physically Handicapped—FRED H. ALBEE, M.D.

Discussion: JOSEPH H. CHIVERS, M.D., Medical Director, Crane Co.

The Employer's Viewpoint—GEORGE P. WARDLEY, Carnegie-Illinois Steel Company.

The Industrial Commission's Attitude—ALFRED J. BORAH, Chairman, Illinois Industrial Commission.

Medicolegal Aspects—FRANK R. PEREGRINE, Attorney.

WEDNESDAY Evening—Dinner Meeting: Presiding: JAMES P. SIMONDS, M.D.; Toastmaster: STERLING MORTON.

We Have a Job to Do to Improve the Health of the Industrial Worker—HONORABLE DWIGHT H. GREEN, Governor of Illinois.

The Care and Feeding of Executives—WALTER ALVAREZ, M.D., Mayo Clinic.

tions and make an important contribution to the knowledge of the public. The small plant offers numerous problems. In this it is recognized that the component parts of the program provide for a physician, nurse, industrial hygiene information, correlation with the practicing profession in the community and with the health department, physical examinations, together with absenteeism data, and, finally, adequate personnel in the various small plant groups.

The broad program of industrial health cannot be dismissed summarily by criticism of the physician—industry and the insurance companies must take services off the bargain counter and relieve the profession of uncertainties. The obvious dependence of the physician on industrial hygiene and public health workers has been repeatedly emphasized, and rightly so.

The necessity of the integration of the work of private practitioners should be recognized and organization perfected; these activities can be carried out effectively today by the Council on Industrial Health; it is also to be pointed out that the U. S. Public Health Service and the Subcommittees on Industrial Health can be helpful here. The resources of the Association are at the service of those needing them; a glance at the program shows that various councils and sections are represented. It is, of course, the avowed purpose of the Council to assist in the provision of adequate medical services, and its activities in this direction are respectfully offered to government groups for their use.

CHARLES P. TAFT gave the presentation on "The Physician and Industrial Mobilization," Paul V. McNutt being unavoidably absent.

The Federal Social Security Agency was set up in 1939, the U. S. Public Health Service, the Social Security Board and the Division of Education being the principal groups involved from an administrative point of view. Later the Office of Investigation was added to this group; and it became obvious that the Public Health Service was extremely useful, as well as the other agencies.

The Health and Medical Committee was composed of the three Surgeon-Generals (Army, Navy and Public Health Service) with Drs. Abel and Richards, and representatives of the National Research Council. A coordinating mechanism was set up by the Social Security Office to keep the programs going.

Recently the President alluded to progress made in the assemblage of materials, men and plants. Production has now been completed so far as the initial program is concerned with reference to plans, and now it is a problem of staying power. Manpower is, therefore, vital and the integration of health and safety is necessary from states, regions and local units; it is a vital factor at this point.

The problem of exemptions is not based on general rules or on categories but is decided entirely on an individual basis. It is expected that the Office will have a staff for the coordination of this problem.

Beyond the provision of medical service, health and safety programs are further important, and provisions for food, housing, and other factors, as well as sanitation and transportation, are concerned here for the health and morale of the people. Hospital facilities have been planned in various regions, and at the present time up to 250 hospital plans have been approved.

A mere condemnation of our losses and setbacks will not settle our problems—it is necessary to get action through education and service. We need less resistance from local medical societies is some places. In most cases, only organized thinking is required: for example, there is the story of the man who established a beauty shop in his plant in order to cut absenteeism on the part of women employees—although this seems amazing, it has really accomplished results.

Then there is the ever-present question as to how many plant executives know how to take care of themselves, even when they are planning for the care of their employees. This is a problem which needs a great deal of serious thought and considered action.

We must needs be connected with health education and venereal disease as special problems; in reference to the latter we must overcome previous prejudices. Intelligent presentations by the medical profession have previously been much neglected. The important factor in the venereal disease problem is the prevention of contacts; segregation with medical examinations will not work in spite of the ideas of some of our best people. Industry must "put the heat on" just as the Army does.

It is obvious that one cannot lock himself in with narrow conceptions of health and safety—we must have community organization and coordination, with the proper type of teamwork. In governmental groups the Public Health Service has exemplified great leadership in health activities.

In conclusion, it must be said that the medical profession has a great responsibility and opportunity in its possibilities in helping to win the war.

DR. JOHN H. FOULGER presented "Further Notes on Preventive Medicine in Industry."

Victory depends on the increasing production, national in scope, and the health of men preserved in the face of difficulties. Some of the difficulties here are rationing, housing, transportation, shortage of physicians, and others which are equally evident.

We recognize that there are certain health and medical problems, but a new point of view is required. Prevention is not the diagnosis and treatment, which has been taught along with other public health practices. Usually prevention means the prevention of communicable diseases and, of course, this must continue. The form of prevention to which the speaker referred is not ordinarily taught in medical schools. This type of prevention must be based on physiology and the observation of disturbed physiological states, before actual disease occurs and causes lost time. There is little of this type of prevention either taught or in use.

With reference to industrial health work, it is recognized that it is not easy to examine workers, and that the examination technique must be simple and not interfere with production or other industrial routines.

One of the problems confronting us is that of chemical exposures. The Haskell Laboratory has gathered a great deal of information obtained through examining workers every two weeks for a period of six years in seven different plants, and also in others. Over 100,000 examination records are available for analysis.

Observations have shown that in the absorption of certain types of chemicals there is a chronic tissue anoxia which leads to an increase in diastolic blood pressure and an interference with the metabolism of vitamins, along with disturbances in the vagus nerve and gastro-intestinal tract. Among the symptoms complained of are headache, fatigue, gastro-intestinal complaints, palpitation, dyspnea on exertion, and pain in various parts of the body, especially in the neck. (In a great many instances, it has been believed that the absenteeism of women is due to the fact that women do not eat properly nor in sufficient amounts—for example, it was found in the experience of this organition that the loss of time fell from 12% to 0.7% in women employees who ate a good mid-day meal.)

Dizziness occurs when blood pressure falls. In such instances there are abnormal Crampton values and these have a parallel relationship to the hourly accident rate. Also it has been found that peptic ulcers occur frequently in chemical industries among employees who have these exposures.

It was therefore decided that it was necessary to find a procedure for examination which would be simple, could be expressed numerically, and could be statistically treated. Thus it came about that the blood pressure reading was adopted.

Study over a long period also indicated that certain changes in blood pressure which were similar to those produced in chemical exposures could also be produced by poor diet, improper medication (sulpha drugs), self-medication, alcoholism, unnecessary exercise, and unnecessary indulgences in tobacco and other things over week-ends and holidays. It was, moreover, found that persons who had

shown the above reactions and habits would react to lower concentrations of chemical substances than ordinarily.

It is thus apparent that we cannot confine our efforts to curative medicine alone; we must be able to observe slight deviations from the normal, and we must also consider the habits of the individual outside of the plant and outside of working hours. In other words, we must be wise before the event. It will thus be possible to limit disabilities and forestall difficulties which produce disabilities.

WENDELL LUND presented the subject "Employee-Management Cooperation for Industrial Health."

Recent indications show that health and safety maintenance are more important than production. Injury and sickness are hampering to the cause of victory. Of the assets, the most important is manpower. Only by the use of all available manpower will progress be made. As an example of our losses, in 1941 one million weeks were lost during the year among industrial workers, and the losses for illness are considerably greater than those for accidents. These factors of losses wage a war of attrition against production.

Difficulties have arisen owing to expansion, the use of new materials, and the use of inexperienced workers, the young, the old, the handicapped, and women.

The speaker was convinced that the appraisal has been one-sided. Responsibility has been placed on the employer previously—now everyone must participate personally. Industrial workers have progressively felt a responsibility, and contracts made for them increasingly call for health and safety measures. The Garment Workers Union was cited as an example of cooperative efforts in the raising of standards of the health of workers. Another example mentioned was the CIO Marine and Shipworkers Union.

Mr. Nelson's program of cooperation has shown the way for the promulgation of educational programs which will result in improved production.

Among some of the problems in industry, recommendations were made for the prevention of oil dermatitis; the use of canteens; the use of first aid stations and training classes; and the use of respirators.

For some time there has been the question of the objections to physical examinations on the part of workers. It is encouraging to note that the Public Health Service has asked the Labor Production Division of the WPB to work out the problem of these objections. As an example of the smooth functioning of physical examinations, the work in a mining town in Utah by the Public Health Service was cited. Here apparently there was no difficulty, because the workers' organizations were consulted and advised of the necessity, as well as the benefits, of the physical examination activities.

The success of any undertaking in industrial health procedures depends upon understanding the employee. Obviously much education of labor and management is necessary, a large part of which falls upon the industrial physician. The physician can support the policies of both groups by keeping his information confidential, meeting with union members, dispensing information on nutrition, venereal disease, the common cold, and health habits, and giving advice on setting up programs for medical service for families of workers.

In quoting a recent statement of the President, the speaker pointed out that there is great interest on the part of those in the administration of the government in the health of workers, in its contribution to the heart, spirit and faith of the nation. All workers must be protected against disease and injury—only in this way can we do the job of really winning the war. This can be accomplished more effectively by the utilization of the worker through his understanding and cooperation, and it is a settled fact that the medical profession will rise to this challenge.

DR. CLARENCE D. SELBY, in closing the Monday morning session, spoke briefly on the subject of "Procurement and Training of Professional Personnel for Industrial Health Service."

DR. SELBY'S remarks were addressed mainly to the industrial physicians, whom he knows well, as to thoughts and problems as well as the anxiety caused by deciding whether to enlist or to stay in industry.

Industrial medical groups have been greatly disturbed because approximately 20% of their personnel have enlisted, and now that the specialty of industrial medicine has grown up it is recognized more than ever that the private practitioners are not qualified by experience or knowledge to take the places of those who have had specialization in this field.

The Procurement and Assignment Service has worked out a plan for the selection and placement of all persons, including women, the young, the old and the handicapped. Any physician, regardless of age, may be considered essential in such a program in the war industries. This was the previous interpretation of the activities of Procurement and Assignment. More recently it has been modified to exclude those under age 38, and there is now a strong possibility that most of these will eventually be drawn for service. Procurement and Assignment has requested the cooperation of the state and local industrial health committees in arranging for replacements. Finally, decisions must of course be left to the Procurement and Assignment Board on all such problems.

Monday Luncheon

THE luncheon session subject was "Industrial Hygiene Abroad," and was to have been presented by DR. WILLIAM A. SAWYER and WILLIAM P. YANT. Unfortunately Mr. Yant was unable to be present and sent his regrets through Dr. Sawyer.

Dr. Sawyer stated that the most of the damage seen in Great Britain resulted from fires, and these occurred mostly in the business and residential areas. In the beginning the fire protection system broke down, but now it is functioning properly.

Facilities were set up for an occurrence of 300,000 casualties, but up to June, 1941, there were 59,000. A remarkable observation was that there was no panic at any time.

A high grade of organization was noted everywhere in the patrols, which set up schools for first aid and gas protection; the wardens know everything about people's activities and movements. The mortuaries are well run and supervised.

Women are everywhere widely used, and are drafted according to ability. They are found in all varieties of work, about five and a half million being in industry, where, of course, they must stay put according to the British regulations.

Delinquency is on the increase because of the disruption of families and various social agencies, and this is a problem of much concern to the authorities.

The last year has been the best one in its records on health. Tuberculosis is on the increase; x-ray surveys are just beginning. Dermatitis is on the increase, fatigue is evident, and venereal disease is up; accidents are tremendously increased. Apparently the British do not quite understand the American way of preventive activities; this applies both to safety and medical work.

There are long hours of work in industrial organizations, and transportation is poor, both of which combine to make great difficulties. The subject of ventilation is discussed everywhere, apparently increased and made more difficult because of blackout precautions. In some instances time off is used to recover from such difficulties.

Industrial medicine is not on the same basis as in this country; there are good men available and there has been a great deal of research, but apparently the practical application of the research has not been accomplished. On one piece of work, for instance, there was a report printed, 250,000 copies being available, but only 25 of these had been distributed. Apparently the people are not able to exchange information readily and do not understand how to propagandize. Before the war, they did not have over 50 full time medical officers; there are probably 250 now.

Everywhere there is evidence that the authorities and those who have special knowledge are willing, but apparently they do not possess the "know how."

There are no industrial hygienists and no laboratories available. There is an association of medical officers in

industry, but these are viewed with some misgivings by the regular factory inspectors.

The insurance companies are apparently not interested in reducing rates or improving working environment. Labor apparently has no desire to help in the bettering of conditions and, therefore, one has to rely on the minimum standards of inspection.

Refresher courses for physicians have been set up on week-ends; these are apparently interesting and well attended.

The morale of the people generally is good—many do not even stop working during air raids. There is, however, much social unrest, and many apparently look forward to the general leveling influence after the war. They also look to the United States for definite and final help. In conclusion, it can be said that the British are a grand and humble people.

Monday Afternoon

ROY S. BONSIB discussed "Ocular Signs of Industrial Poisoning." One of the great difficulties which complicates the problem of working out the ocular signs of industrial poisoning results because of trade names or numbers in the identification of various chemical compounds; it is rather difficult to find out the chemical structure of such compounds because of this practice. It is the responsibility of medical and safety personnel to know about the materials used in their own organizations.

Reports of injuries to the eyes are a great deal more reliable than those on ocular lesions resulting from industrial exposures, the latter probably being on the conservative side. Moreover, the latter are frequently not reported to compensation commissions.

In many instances, neither physician, employer nor worker knows of the type of exposure which is being experienced. It is recommended that those complaining of headaches or eye irritation of any kind should have a special examination, and that an investigation be made of the industrial exposure involved.

Especial emphasis was laid on exposures to ammonia, benzol and its homologues and intermediates, carbon disulphide, hydrochloric acid, lead, methyl alcohol, nitroglycerine and phosphorus. These are among the substances which are known to produce trouble with the eyes. Various plant products of other types were also mentioned.

Particular reference was made to the work of Louis Resnick in his investigations of industrial eye hazards, on which his volume, "Eye Hazards in Industry," was recently published.

Descriptions of various lesions were given with reference to lead, arsenic, carbon disulphide, hydrogen sulphide, carbon monoxide, methyl alcohol, and benzol and its homologues.

In conclusion, it was stated that it is an axiom that there is no such thing as a minor hazard to the eyes. Dependence must be placed on ophthalmologists, industrial physicians and nurses, for proper prevention through selective placement.

DR. AUSTIN E. SMITH opened the Symposium on Common Infections in Industry, discussing "Newer Concepts in the Prevention and Treatment of Wound Infections."

It is significant that labor comprises one-third of the population, that one-third of the labor group is now engaged in war, and that within a year probably two-thirds of this group will be so engaged.

Infections cause 0.5% of lost time in industry at the present time—they cause 15% of total disability and 0.6% of the deaths. The cost of an infected case is $188.00, as compared with $93.00 average case cost for all injuries.

The prerequisites of a good antiseptic were given, and it was stated that no one agent fulfills all of these. Moreover, it was emphasized that a list of the criteria are to be presented with each of the antiseptic agents. In this connection the Laboratory Section of the American Public Health Association has developed an outline which was referred to as representing a very good guide.

Pertinent remarks were made with reference to various compounds as follows:

The sulphonamides are now in almost universal use. It was stated that the local use of these compounds requires more investigation. Ultra-violet radiation has its limitations, and there are complex factors involved. It is obviously unsound to apply this modality without adequate control. Aerosols are not new but were known during the time of Lister; propylene glycol is now being studied. Investigations have been made with reference to certain detergents; consideration should be given to the possible injurious effects of wetting agents. A general survey is now being made with respect to the use of various soaps. With reference to quaternary ammonium compounds, one such compound has now been accepted as being reliable. Of the bacterial extracts (commonly called antibiotics) a number have been standardized and are now being studied. A considerable amount of investigation on burns is being done.

It was concluded that the ideal preparation for disinfection and antisepsis seems as remote as ever. In the words of Ambrose Pare, "I dressed his wounds and God healed him."

DR. HARRY FOERSTER presented a paper on "Recognition, Prevention and Essential Treatment of Occupational Dermatitis, with Particular Reference to Oil Dermatitis and Folliculitis: Report of Committee on Occupational Dermatoses, American Medical Association."

It was stated that there was nothing new in the report but that it constituted a summary of previous knowledge.

Industrial dermatitis, particularly with reference to its control and prevention, may be discussed under three headings: (1) personnel; (2) protection; and (3) cleansing agents.

In the selection of suitable personnel, it is important to go into the history of previous skin troubles and also to identify those with evidence of present or past skin irritation. Those who are sensitive, those who have allergy, and the neurogenic types should be given special consideration. Under this heading also come instruction, training and inspection with attention to minor injuries, the use of dirt removers, special clothing, and the presence of skin irritants in the working environment.

Protection involves sanitation and factory engineering, with the provision of proper ventilation, and washing and bathing facilities. Under this heading also comes provision for gloves, aprons, and special trousers, all of them made of impervious material. Protective appliances, such as creams and lotions, must be selected for each type of exposure. In the full text of this paper there will be published nine different formulae of this type.

In discussing cleansing agents, it is to be noted that sometimes there is more trouble resulting from these than from industrial exposures. One of the best types of cleansing agents is a superfatted soap with a wetting agent; here Schwartz's recommendations were emphasized.

An outline of trouble due to cutting oils was given, in which it was stated that it is necessary to know the contents of the oils and to consider protection against the types of irritants the oils may contain, among which are sulphur, chloride, and phenol, as examples.

Folliculitis due to oil exposure is common. In this, there are comedones, papules, sometimes pustules and furuncles. There may also be keratoses and pigment which may lead to epithelioma of the skin.

By far the most important preventive measure is cleanliness. It has been found that the sulphonated oils and corn meal have been very efficacious as cleansers.

The recognition of oil dermatitis involves early diagnosis and treatment, with proper special knowledge of etiology in the industrial environment.

In discussing patch tests, it is recognized that the chief value of the patch test is seen in allergic types. The history should always be detailed and the examination carefully made.

As an important contribution to our knowledge, the Committee on Industrial Dermatology is now collecting information with respect to the amounts of irritants which may cause a reaction, so that there will be, as we have in industrial hygiene work, some standard of comparison.

DR. CHESTER S. KEEFER discussed the subject "Respiratory Infections in Industry: Joint Report Prepared by the Council on Pharmacy and Chemistry and the Council on Industrial Health."

There is no completely effective method of prevention and control of respiratory infections. The speaker confined his remarks to the common cold, influenza and pneumonia.

A cold is a virus infection in which the secondary invaders play a very prominent part. There is a cyclic morbidity, and environmental factors are of importance but their role is still undetermined. As an example, the experience on the ship Carnegie was cited in which those who were isolated from civilization experienced no colds, but as soon as contacts were made with civilization colds occurred. It is obvious that we must know more before control of colds can become effective. There are no measures now which are really specific. Vaccines have been disappointing and have failed to lessen the frequency and complications unless given over long periods. Vitamins have not been effective in the groups studied. "Hardening" practices are inefficient. In personal hygiene, it is important to avoid chilling and exposure which may help, especially in the "cold season."

Influenza of the type which has been observed does not present a distinct clinical picture, but it is of great importance with respect to time lost and the paralyzing of industrial groups in wartime. It also produces characteristically high mortality and pandemics. With regard to prevention, vaccines and propylene glycol vapor have been suggested and tried. The incidence has been reduced by various preventive measures, the duration of the disease shortened, but no specific protection has been provided except under certain special conditions. Propylene glycol vapor has apparently some protection in preventing cross infection. Ultra-violet rays show some promise in this respect.

The reduced incidence of pneumonia preceded specific protective measures. The case duration has now been greatly reduced by sulpha drugs and serum. Prognosis depends upon many factors, some of those brought out by Metropolitan Insurance Company's survey in 1941. Little has been accomplished in prevention. It has been pointed out that one should avoid excessive fatigue, chilling and a combination of overheating followed by chilling, colds and bronchial infections, as well as proximity which promotes spread of the disease.

In conclusion, it was stated in brief that control measures have been outlined for the three respiratory infections, and especially has been emphasized the need for further research.

DR. JAMES P. LEAKE discussed immunization measures for smallpox, typhoid fever and tetanus, and requested that his remarks be considered "off the record," and not be recorded.

DR. LEVERETT D. BRISTOL closed the Monday afternoon session with the subject "Problems of Organization and Administration in the Program of Immunization for Industrial Workers."

Consideration was first given to the functions of the physician with respect to the groups involved in the industrial health program, namely, (1) the private practitioner; (2) the industrial physician; (3) public health authorities; and (4) industrial health committees.

It seems desirable to continue smallpox immunization. Although it is not possible to do routine typhoid vaccination, it should be considered important in certain localities. Tetanus is an important disease in industry, and immunization against it should be continued; it has become a routine in some industrial establishments.

If and when immunization for colds comes to be considered and practiced on the same basis as immunization for smallpox, it will be early enough to resort to immunization practices for colds. This statement is not intended to discourage demonstrations and surveys for the possible working out of good methods of immunization, for the common cold.

Monday Evening

DR. ANTHONY J. LANZA presided at the State Societies dinner and round table.

On the first subject "Local Organization for Industrial Health Services," Dr. Jones, Chairman of the Committee on Industrial Health of the State Medical Association of Indiana, outlined the inception of the very fine program now in effect there, and introduced Dr. Spolyar, who gave an excellent report on the methods employed—through enlisting the cooperation of the county medical societies, as well as the state agencies. The educational program plans the training of part-time and on-call physicians, and the supplying of industries with men thus trained. A two or three day post-graduate course is to be given at Indianapolis in the near future; and later a course extending over several weeks with lectures, field studies and assignments to special plants, the training to include industrial hygiene and toxicology and the administration of industrial medicine and engineering.

Dr. Frederick J. Wampler described the industrial medical education plans at the Medical College of Virginia; one purpose is to stress the right attitude toward industrial medicine on the part of those preparing themselves to enter into it.

Dr. Raymond Hussey told of the difficulties in Maryland in getting doctors to attend industrial medicine conferences. These difficulties suggested that a better method of approach might be to get managements interested first. This was done and the interest of the physicians is on the increase, as indicated by the responses to the "traveling course" inaugurated in that state.

Dr. Lanza said that all concerned must feel optimistic regarding the progress made even during the last year in industrial medical programs throughout the country. Dr. Cranch remarked that while the plans for medical school training seem to be developing rapidly, the present need is for "quick training." It was also brought out that there are numerous advantages in all plans on the county level which succeed in getting local men interested in industrial medicine.

In closing the discussion, Dr. Selby referred to the developments in Indiana as an effective answer to the challenge hurled at the medical profession several years ago; this plan has been worked out so that the physicians are doing by themselves the job that has to be done. Michigan has adopted the plan, other states are considering it, all states must come to it.

On the second subject "Recent Experiences in Post-Graduate Medical Education," Dr. Doyle spoke interestingly on how labor management committees can be utilized in the development of industrial health programs. Kentucky offered to attempt the experiment on this line. Those in charge of the matter made it their business to know the state's industries; and in August of last year at Louisville, there was a meeting to organize labor-management groups, participated in by medical, engineering, safety and welfare personnel—119 people from 62 industries. Fifty-six labor management committees were the direct result of this meeting, and the number has increased rapidly since. Both management and labor are industrial-health minded.

Dr. Sarah Morris spoke briefly regarding Philadelphia's plan for small industries, saying that the Pennsylvania Post-Graduate Course in Industrial Medicine, which began on January 5, and is to continue to the end of February, already had 67 enrolled for the full course, with applications still coming in. Dr. Cameron described the Philadelphia plan in some detail; its adoption on a scale of real effectiveness required "salesmanship."

Dr. Lanza recalled that the first definite efforts to give small plants the proper industrial medical services had been worked out 15 years ago by Dr. William McConnell, of Metropolitan Life. Dr. McConnell, in this respect at least, was ahead of his time.

Tuesday Morning

THE first presentation of the Tuesday morning program at which DR. WARREN F. DRAPER presided, was that of DR. HARVEY BARTLE, Chairman of the Committee on Physical

Examinations of the Council on Industrial Health, consisting of the report of that committee on "Industrial Physical Examinations."

DR. LEMUEL C. MAGEE presented "The Toxicity of Military Explosives." Among the substances used in explosive making which lead to medical experience are the aromatic hydrocarbons of the benzol series, products of toluene, trinitrotoluol, dinitrotoluol, tetryl, fulminate of mercury, nitrous oxide, nitrogen oxide, nitrogen dioxide, nitrous fumes, diphenylamine and lead azide. Exposure to the hydrocarbons may be fatal; the effects are noticeable on the central nervous system, and in muscular weakness. Acute poisoning causes paralysis. It is good to begin work in TNT with a well-filled stomach. Among the findings in TNT workers are cyanosis, leucocytosis, dermatitis, anemia.

In dinitrotoluol workers one of the first symptoms is an unpleasant taste in the mouth. The findings include cyanosis, anemia, and dermatitis. Characteristic clinical findings are jaundice, and peripheral neuritis. It is not good for alcoholics to work with this substance. Tetryl produces the characteristic dermatitis and discolorations. The nitrous fumes are treacherous, in the mildness of their symptoms.

DR. JAMES G. TOWNSEND, speaking on "Optimum Hours of Work," presented the recommendations of a Committee of Representatives of the War and Navy Departments, the Maritime and War Manpower Commissions, the Commerce and Labor Departments, the Public Health Service, and the WPB on hours of work and maximum production. The committee recommends: (1) One scheduled day of rest for the individual approximately every seven days as a universal and invariable rule. (2) A 30-minute meal period in midshift, as desirable from the standpoints both of the worker's health, and the worker's productivity. (3) Re-examination of the daily and weekly hours of employees in war production plants to assure schedules which will maintain maximum output over a long war period. (4) Vacations away from the job, having been proved conducive to sustained production, should be provided for. By staggering and spreading them over the longest possible period, managements will be able to obtain the benefits of allowing them, without paying an over-balancing cost in productive hours lost. Dr. Townsend outlined the advantages of these recommendations, and urged their adoption. The committee has examined all available evidence. With excessive hours production suffers—from fatigue, loss of materials by spoilage, and from sickness. Reduction of working hours from 12 to 10 leads to an increase in output; from 10 to eight, more of an increase; but below eight hours there seems to be no increase.

DR. H. CLOSE HESSELTINE, Chairman of the Committee on Health of Women in Industry, A.M.A. Section on Obstetrics and Gynecology, gave the preliminary report of his committee on "Women In Industry." This was a summary to date regarding the general and special problems relating to the employment of women, of whom 22% of all those now employed are now in war work. The experiences of Dr. Max Burnell, at AC Spark Plug Division, General Motors, were mentioned in some detail.

DR. WILLIAM A. SAWYER, Chairman of the Industrial Health Committee of the A.M.A. Section on Preventive and Industrial Medicine and Public Health, gave a report, with recommendations, on "Prehabilitation." He described how the "Rochester Plan" handled trainees for industrial work. Each trainee is given a complete physical examination on registration for employment, including urine, Wassermann, and tuberculosis skin tests. After this he is rated as to ability to work with relation to correctible defects. The purpose of the corrective measures thereafter pursued is to get him in shape for a job he is qualified to handle. The unit cost of the plan thus far has been $3.54 per trainee examined.

DR. ANTON J. CARLSON'S subject was "The Older Worker." In his absence, however, the presentation was read by Professor Lockhart. Physiological age is not chronological age; heredity, mode of living, and the sequelae of disease alter the individual case. The lowering of physical strength and endurance and the impairment of vision and hearing which characterize the aging, may be compensated for in skill, experience, and avoidance of dissipations. Senescence is characterized by gradual retardation of cell division, growth and repair, lowering of the rate of tissue oxidation, atrophic changes in the cells, reduction of tissue elasticity, slowing of muscular reactions, decline in strength of skeletal muscles, and atrophy of nervous tissues. Intellectual capacity does not decline in parallel, because of the role played by experience. The proper diet for the old is not too well established. The older worker, instead of being retired, pensioned, or assigned to a non-productive evening of life, should be kept at work and paid a declining wage in accordance with the decline of his powers—a reversal of the principle whereby an apprentice is paid more as he learns more about his trade.

IN A SYMPOSIUM on Medical Relations in Workmen's Compensation, which was a joint presentation of the Bureau of Legal Medicine and Legislation and the Council on Industrial Health, there was a reversal of the order of speakers and the introduction of certain discussants early in the scheduled program, because of the lateness of some of the speakers on account of inadequate train service.

Dr. Raymond Hussey, acting as Chairman, gave the Report of the Committee on Workmen's Compensation of the Council on Industrial Health.

It is the hope of this body to have an annual conference on medical relations in workmen's compensation. The committee at the present time is 18 months old; the other two members of the committee are Dr. C. W. Roberts, who has automatically resigned as he has become a member of the Board of Trustees, and Dr. Henry H. Kessler, who has gone into the Navy—therefore, the work of the committee has been a one-man job.

The objective has been to try to achieve orientation, but the problem is hetereogenous.

Most medical men think not at all or lightly of the subject of workmen's compensation relationships. There has been a great deal of criticism of one group by another. It is essential that we understand the attitudes and opinions of other groups, and also we must know the historical background of workmen's compensation.

When the laws were first passed, the medical relationships of the physician to his patient were rather close, and lawyers were buried in their concepts of torts and master-and-servant, and did not believe in workmen's compensation principles.

Today medical service, prevention and rehabilitation are the real triad of workmen's compensation—compensation, of itself is, of course, a feature but not the important one.

When the compensation laws were first formulated, public health was in swaddling clothes, preventive and administrative medicine was in the blastoderm stage. Then came the first world war, then the roaring '20s, and then the depression '30s. Hence there was a good deal of interruption.

It is a cardinal principle, worthy of much thought and practice, that medical questions should be passed on by medical men.

Since workmen's compensation is a legal and a social system, we can, therefore, understand some of the liberal interpretations that have been made.

Laymen love to "dabble" in medical things and read references, but without the proper background they encounter difficulties.

There have been a number of problems with reference to disability. The speaker looks forward to getting a statement on the problem of termination of disability in the future. Reference was made to the McBride and Kessler methods of estimating disability.

It is often said that medicine is not an exact science—what is? Physics was, before radioactivity was discovered; chemistry was, before the chemical gas laws were revised. One must interpret what is meant by the word "exact" before the statement may be seriously considered.

The Council on Industrial Health hopes to do constructive work in the field of medical relationships in workmen's compensation.

J. W. HOLLOWAY, JR., Director of the Bureau of Legal Medicine and Legislation of the A.M.A., presented a brief discussion. The Bureau is constantly making a study of proposed legislation and current court decisions in evaluating what is going on in this field. It is hoped to be able to increase the scope of the information available and the service to physicians, and also that conferences may be held regularly on this subject.

DR. HARRY HUBER gave the report "Allergy: Its Place in Compensation Procedure," which was a report of the Committee on Workmen's Compensation of the Society for the Study of Asthma and Allied Conditions as revised and approved by the Advisory Board of American Allergists.

Allergy may be simply defined as a disease due to exposure to substances to which the individual is sensitive. In this respect it is a special idiosyncrasy. Asthma, hayfever, certain nasal congestions, and dermatoses are examples of allergic manifestations. All these conditions should be studied by a specialist in allergy.

A classification was then given of the different types of allergy which may be encountered in industry and remarks made with reference to compensation, as follows:

(a) When the irritating agent is encountered in the occupation and treatment cannot be relied upon because of excessive exposures, and when desensitization is only relative, the disease should be compensated. It must be remembered also that the individual is likely to become sensitive to other substances. The last employer should be liable.

(b) When the irritating substance is encountered both in and outside of employment, difficulties may continue for years, but the occupation may be at fault. The employee should be treated and compensated.

(c) When the irritating substance is known to be entirely outside of industry and the occupation can only be considered contributory in a minor capacity, the employer should be made liable for future treatment. There should be a limited compensation while seeking other employment.

(d) When the employee is allergic to substances which are not on the job, the employer should not be liable unless paragraphs (e) and (f) to follow obtain.

(e) Respiratory infection may greatly aggravate allergy. In such instances, the disease should be compensable when due to unusual conditions of employment. There must be rigid requirements here and the employer's liability limited.

(f) It was formerly felt that nervous factors might be associated with allergic conditions, but this idea is no longer tenable. This principle should be definitely defined by statute and, if allowed, definite limits should be set.

It is expected that the majority of cases will fall into class (d). It is believed that the other classifications should present no burden to industry.

In the discussion, Dr. Hussey remarked that the report showed great care and study.

Dr. Herman, of Baltimore, stated that it was hard to comment on such a "closely-packed" report. It should be remembered that compensation is paid for lost time and not for suffering. Although the report seemed medically excellent, it was evident that not much experience had been made use of with respect to the administrative phases. Allergy is really accidental, and when you use this word there are great difficulties arising. Lawyers will argue endlessly on non-industrial and industrial sources of exposure. Our present conceptions of respiratory allergy, particularly in this report, also present great difficulties. Much responsibility devolves upon adequately trained allergists, and it is not easy to make the sharp demarcations indicated. We owe a great debt to the committee for the preparation of this report, and it presents a skeleton for future ideas.

Mr. Bartlett stated that it may be possible to work out arrangements on well defined cases, but when an employee goes to work some place else we may have to provide for a series of disablements. This whole matter presents a tremendous medical problem.

Mr. Marquis, of the CIO, could see that certain difficulties would arise if we were to have many categories of diseases, so that the laws might become unwieldy. We should have general classifications. He was opposed to any limited liability on any disease. The apportionment of liability is a legal problem and one that should be solved in drafting legislation.

Verne Zimmer agreed with the remarks of the last speaker. He believed that it was not possible to apply the theory of the report administratively. There appears to be too much tendency for exemption under the laws. Approximately 4% of compensation granted is due to occupational diseases as a maximum, and this does not appear as much of a problem. There seems to be a tendency to marshal an array of specialists to adjudicate occupational diseases. In this connection it is believed that there will not be enough specialists to warrant administrative refinements as indicated in this report.

Dr. Gilbraith, of Canada, agreed with Mr. Zimmer that occupational diseases give little trouble from an administrative standpoint in compensation problems. With carefully made medical investigations he did not consider occupational diseases a serious problem. In Canada medical evidence is given before medical men and the system is much different from that given before laymen.

DR. ERNEST M. HAMMES spoke on "Control of Medical Testimony: The Minnesota Plan."

At the outset, it should be stated that the situation in Minnesota is no worse in medicine than it is in other states.

Requests have come from the medical society for investigation of certain testimony, and the medical associations have cooperated. Ordinarily the Bar does not deal as gently with its members as does the medical association. The Association of Railway Claim Agents and the Association of Insurance Companies have also published articles with reference to the control of medical testimony and have aided greatly in this campaign.

The chief interest has been in the elevation of standards of medical testimony; it is hoped to reach this objective.

Experts in neuropsychiatry have been severely criticized by the press and others, notably in the Thaw, Hickman, and Leopold-Loeb cases, cited as examples. It is now recognized that a person can be responsible even when having a low mentality (for example, an IQ of 72). Clarification, therefore, has been attempted by the American Psychiatric Association and the American Bar Association so that certain difficulties will be avoided, particularly with reference to the validity of wills.

It is a matter of historical importance that the A.M.A. recommended legislation to improve medical testimony in 1923. Dr. Woodward, of this Association, places a responsibility on the lawyer and the judge in allowing witnesses to testify who are not qualified, and also makes the point that the attorneys allow unqualified witnesses to testify and bring them in for this purpose. He suggests that the judges should pass on the qualifications and that lawyers also should offer only qualified witnesses for the giving of testimony. It seems to be the prevailing opinion that this is not a practical solution to the problem.

Some states have laws regarding the appointment by the court of the expert witnesses to be used. Stryker thinks that the real remedy lies in the development of conscience and in the condemning of improper testimony.

The Minnesota plan is simple and consists of an investigation of a complaint; if further investigation is in order there is a committee who confer with the physician and remind him of the possibility of the revocation of his license. The committee is composed of five members geographically distributed over the state. The complaint must submit names and dates, and the name of the case and other details and must be in writing. The transcript of the case must be obtained and given to the committee.

It is, of course, obvious that members of various specialties must be willing to appear and give their opinions.

Very often it is found that physicians are not willing to appear as complainants, which interferes with the successful working of the plan.

The committee has no disciplinary nor police power. In the mild cases, it merely confers with the accused; in the flagrant cases, a transcript of the case and a copy of the complaint is sent to the Board of Medical Examiners.

In recent times there have been most satisfactory results from this plan. For example, there were no complaints arising in the last fall term of court.

HENRY D. SAYER presented a discussion of "Workmen's Compensation: The Shape of Things to Come." The essayist is not a prophet but must consider the shape of things that have been before the shape of things to come can be visualized. There has been in effect a system of compensation which has some attributes of social security, but after all it is a legal concept and not predicated on fault of the employer as it formerly was in the common court cases.

In England in 1897 there was established a rule for the compensation of injury cases and, soon thereafter, it came into effect in this country. The laws in the various states differ, but all have the provision that compensation shall be paid regardless of fault. No account is taken of pain and suffering, but provision for compensation, medical care and treatment at the expense of the employer is a common attribute of all laws.

The principle of compensation is not new, but was handed down by Moses, reference being made to a quotation from Exodus which provided for loss of time and for treatment. It is new, however, in that it has only been in existence in this country for a quarter of a century.

The employer pays the bills, and, therefore, wants the worker back on the job as soon as possible. Insurance companies assume the obligations for payment where insurance is provided for. The physician practices his curative art and the principles of restoration. In the early days this was an individual obligation, and the realization that he had a wider field came slowly as organized medicine realized its responsibility. It is to be noted that most all groups involved in compensation principles speak through their specific organizations.

The insurance companies feel that medicine should take more of a part in this program; there should be more medical contacts available; these principles are inherent in the shape of things to come. Insurance funds are a trust, and the actual cost should be no more than requisite. We must not burden industry nor the consumer with the cost of carriage. Rates are based on scientific backgrounds. Prompt and full payment should be made to beneficiaries.

In carrying out its obligations, the insurance company must know the nature of the injury, the treatment necessary and the period of disability, for proper financial disposal of the case.

The questions of cause enter in, are many, and vary from the most simple to the most complicated. Opinions should be backed by logical proof and modified if unknown factors are discovered, but in such medical opinions the doctor should stand by his beliefs.

In the industrial field the physician must be something of an engineer; he must know processes and operations; he must be something of a statistician; and he must also be something of a public and industrial health expert.

In some 30 states provisions are made for occupational diseases on the same principles as those for injuries. It is reasonable to expect that all states will eventually make such provisions. Not all diseases in the course of the employment are occupational diseases, and the laws should not represent general health schemes. Exposure is deemed etiologic, but mere exposure does not warrant definite diagnosis, which must be related to the nature and extent of the exposure in terms of cause and effect.

Questions arise in regard to pneumonia, heart disease, and such afflictions, and often cause protracted legal processes where the statutes are vague.

The framing of occupational disease legislation should not be left wholly to lawyers, industrialists or labor—it must be supplemented by scientific medical information. It may be well expected that in the future medical boards may have the most impressive part in the administration of compensation laws.

Silicosis presents peculiar aspects; there is a long period necessary to contract the disease and a long period necessary to develop disability. Industry cannot assume responsibility for the disease when acquired shortly after employment, although it is recognized that there is no real sound way of apportionment of risk. Those who have contracted silicosis in non-disabling form present a very difficult problem; the principle of accrued liability has been used before legal liability occurs; to require a liability otherwise is to insure a burning building. Such a risk is uninsurable and the rates are not measurable.

The real problem is not payment of compensation but prevention of future occurrences—this is the engineer's province—but the surface of industrial health is hardly scratched. The next 25 years must see great awakening in the control of hazards.

Insurance will fail, medicine will fail, if their representatives do not work together. We must plan for the future in spite of the war clouds, to advance the cause of prevention. We need not fear the shape of things to come if this is done.

IN THE round-table discussion of "Practical Problems in Framing Occupational Disease Legislation," Dr. Kenneth Markuson, of Michigan, stated that the Bureau of Industrial Hygiene of that state has not been consulted on changes in legislation. The present law provides compensation for disability in case of 31 named diseases, it being a schedule type of law. At the present time there is proposal of so-called "blanket coverage." If such a law be passed there should be proof of exposure and clinical findings submitted in the evidence. The present law provides for 90 days payment—industry cannot go much beyond that. In the unemployment postwar experience it may be discovered that physical defects of various kinds may be grounds for refusal of employment.

Dr. Hein, of Ohio, stated in the discussion that, in that state, changes by the Supreme Court added a so-called "open" clause providing for the coverage of all diseases, in 1939. There is a silicosis board in Ohio, and there is also a panel of doctors for other problems, selected by the University, State Board of Health, and other groups.

Further discussion by Dr. Gilbreath, of Canada, Mr. Voyta Wrabetz, of Wisconsin, and Mr. Kaufman, an insurance representative from New York, emphasized that plans for prevention are regarded as the most important phase of the whole problem.

Tuesday Luncheon

MR. VERNE A. ZIMMER discussed the "Value of Qualified Physicians in the Personnel of Workmen's Compensation Commissions."

With the advent of compensation laws, the medical profession took on additional responsibility; the treatment and evaluation of disability were an unwelcome task to many physicians, and apparently the profession although competent in medical matters, was not especially skilled in the evaluation of disability.

There are some books on the subjects alluded to, and on allied subjects, but they are not best sellers, even among the medical profession.

The private practitioner is not often called into cases, and apparently the bedside physician is at a disadvantage here. Reports are difficult to get and are often incomplete.

Equally distasteful to the physician is the hearing; often it is a trying ordeal, and very often the physician is not properly remunerated.

It comes about, therefore, that opinions derive from relatively small groups in such cases, and occasionally a medicolegal consultant is used. Some of these become both a Hippocrates and a Blackstone (reminding one of a possible slogan in the barber-surgeon days—they are both "bleeders and pleaders.") Life is too short to cover all parts of any one profession. In the words of the immortal DaVinci, "There is so much to do and so little time in which to do it."

Perhaps the medical profession as a whole has been in default in allowing a few to assume this self-appointed responsibility.

Of the huge annual losses which occur, every dollar paid out and every denial of compensation must be prompted by the medical profession.

The commissions should be determinants of questions of fact, and most all of such questions of fact depend upon medical opinion.

The speaker was not in agreement with the principle of use of the medical referee; such a person is not used on juries; and referees need be neither doctors nor lawyers.

In 1941 there were over two million cases of disability and more than 100,000 persons permanently impaired. There was much conflict in the medical opinion, and so it can be said that a sort of rough justice was done.

It is important to point out that there are variations of 10 to 60% in appraisals of disability—laymen probably could do no worse in such appraisals. It is well known that one cannot estimate disability by reliable mathematical formulae. But we should be able to develop some satisfactory basis for the estimation of disability, either permanent or partial type.

The present system is a tremendous improvement over common law hearings, but there are many possibilities of further improvement. There seems to be a lack of uniformity in the various provisions made by the different states, but such are no greater than the medical appraisal standards.

There has been a failure on the part of the states to provide qualified experts—to paraphrase a famous trade slogan "tell me what medical facilities there are and I'll tell you how well the scheme works."

When faced with conflicting testimony, as is often the case, the staff physician is the "ace in the hole." There is no state too small to afford a full time medical staff.

In conclusion, there is no factor of equal importance in the compensation system to be compared with the medical profession and its activities.

AT THE Tuesday noon luncheon and round table, DR. HEDWIG KUHN presiding, introduced DR. H. GLENN GARDINER, who talked on his "Experiences in Setting Up a Visual Program for Safety and Production in a War Plant." The company of which Dr. Gardner is medical director is the only one that has adopted an all-out visual program for its plants. The basis of this program is goggles for every worker, with every goggle-lens expertly ground to the prescription which exactly corrects the visual defects, whatever they may be, that might in any manner reduce the employee's productivity or safety. The compelling reason for such a program is the fact—evident wherever the finer work necessary in war production is accomplished—that great quantities of critical materials are spoiled and wasted, to say nothing of the critical time lost, from lack of visual acuity. The eye examinations in the survey in Dr. Gardner's plant were made by an oculist. No survey of this kind should ever be undertaken except under similar ophthalmological direction. Among the interesting results mentioned was the discovery that the proper visual acuity for their particular job was lacking to the extent of 30% among those employees already wearing glasses, while among those not wearing glasses there was a 15% lack. Some of the reasons were that the glasses had been worn for several years without change, and that in many cases the prescription to which they had been made afforded a more or less "compromise" lens. About one-fourth of the employees examined had a depth perception deficiency; a slightly smaller percentage showed muscular imbalance; about 6% showed color deficiency. The specially fitted goggles are routinely inspected and carefully maintained; it has been discovered that there is much more to the maintenance than merely keeping them clean. It should be borne in mind, in any adaptation of the "complete goggle" plan, that the lenses for the working goggles are made for maximum visual acuity in the employee's particular kind of work; they may not in themselves be the most suitable for reading or the best for distance. They are part of the employee's equipment for the utmost safety and productivity on the job. The cost of the program has been saved many times over in measurable respects, but it is worth more than its cost in the enhancement of the worker's attitude toward his own capabilities.

The insistence upon visual acuity of this kind can be made a part of the pre-employment routine. It will be well, however, to observe the fact that a nice balance must be maintained between experience on one hand, and the necessity for visual acuity for the other.

There are places where one of the principal bottle-necks in speeding production, exists in the eye defects of those who are doing the producing. On the level of possible objections to such a program, it is fundamental that the employees and the chiefs and leaders of their unions, must respect honest medical opinion.

Something that cannot be overlooked in the matter of visual acuity is accident proneness. This has only to be given serious thought for its far-reaching possibilities to be visualized.

In the discussion, Dr. Henry M. Gradle interpolated a brief report on the spread of kerato-conjunctivitis, which has become almost epidemic in certain parts of the country. This may prove serious, as the average time loss is 18 days. Much of the transmission may occur through the medical personnel. He recommended strict asepsis and isolation, both to be insisted upon, but the former ahead of the latter.

Tuesday Afternoon

THIS session was a symposium on two different subjects —"Industrial Medical Practice and the Emergency" and "Streamlining Industrial Medical Service."

Dr. Ward L. Mould spoke on "Correlation of Industrial Medical Organization with Community Emergency Medical Service."

There have been extensive surveys on hospital facilities and the formation of blood banks in various localities. The evolution of emergency medical service has been slow but solid, and provides for (1) plant catastrophies, and (2) plant and community catastrophies.

The proper spread of emergency service is very important so that overloading is avoided.

It is vital to the interests of industrial organizations that a roster of all employees be constantly kept up to date and that identifying badges be used; both of these procedures will avoid confusion relative to missing persons when catastrophies occur.

One element not to be overlooked is proper provision for the disposition of dead—often this is disregarded and no provision made whatever.

Minor degrees of injuries to be cared for at casualty stations are also an important provision, and it should be understood that no major surgery is to be done at these stations, but cases are to be filtered through and sent to hospitals.

Quite often sanitation is not planned for in advance, and back syphonage of sewage into the water supply occurs because of low pressure of the water supply during use in fighting fires.

Special provision should be made for the admission of police and physicians into war plants in disasters.

In conclusion, another very important point that should not be overlooked is the provision for the care of injuries among plant protection personnel, such as watchmen, fire watchers, plant police and the like.

PROF. PHILIP DRINKER discussed "The Health and Safety Program of the U. S. Maritime Commission and the U. S. Navy in Contract Shipyards."

The general policies for this work emanate from Washington, and there is regional supervision by Maritime regional offices in four different locations. The Navy has district offices located in previously arranged districts. Contracts are let to private parties, and final inspection is made by governmental officials.

Women are more and more used in the shipyards. There is general provision for supervision on the day shift, and the night and graveyard shifts have divided supervision. Housing problems are still important.

Standards on health and safety regulations were submitted and adopted December 7, 1942. The Navy assigned seven officers for engineering work and four safety officers.

An overwhelming percentage of "green" employees has been encountered; provisions should be made for proper supervision of these. Although one cannot foresee what will happen, it is probable that extreme pressure may cause condonement of practices which would ordinarily not be permitted.

Eye flashes and foreign bodies in the eye represent an important problem. Kerato-conjunctivitis is not directly attributable to shipyard procedures and should not be blamed on the shipyard managements.

Welding painting surfaces offers lead exposure, as does, similarly, spray painting operations. Only Bureau of Mines approved protective device should be worn by exposed employees.

There has been better wiring in the Navy ships than in the freighters; recently reported is an irritation of the skin because of substances used for insulation.

Prefabrication and welding in place are common procedures of large pieces; ventilation should be improved in confined spaces.

In general, there are well-run programs in use. Of course the service is greatly inconvenienced by the shortage of physicians, but probably this is no worse than in other situations.

Pre-placement examination and occasional checkups are important, and the service is pledged to see that there are proper procedures, carried out with the assistance of the worker.

Unions are always informed as to procedures which are going to be instituted and the reasons therefor, and also the results of surveys and recommendations following them.

In conclusion, the health and safety program of the U. S. Maritime Commission and the U. S. Navy is dedicated to the service of the nation.

IN OPENING the part of the program on "Streamlining Industrial Medical Service," DR. EDWARD C. HOLMBLAD spoke on the subject "How to Get Along with Less Help," dividing this into two parts: "Legitimate Shortcuts in Routine Service" and "Can We Secure and Train Technical Assistants for Certain Routine Industrial Health Procedures?"

The order of the hour is that we do more work faster and with less help, because of increasing demands. One source which is not available at the present time is that of young men after internships and residencies, because of their being taken immediately into the service. There is, therefore, need of devising shortcuts.

In the army there are approximately eight physicians for 1000 to 1200 men, whereas in industry it is common to find a ratio varying from 1 to 2000 to, in some instances, 1 to 15,000 persons. As an example, six physicians have provided for 13,000 employees on three shifts, the physicians working 14 to 18 hours a day.

The following recommendations are, therefore, made:

1. That the physicians be supplied with the best of tools, with good space, well ventilated and lighted, and with the best arrangement of equipment.

2. There should be improved methods of treatment: needles and sutures should be previously prepared and pre-sterilized, being ready for use. The size of the needle can be traced on the outside of the sterile envelope. Sterile syringes and sterile eye spuds may be similarly prepared in advance.

3. There should be simplified records, such that check marks can be used instead of long sentences. Many questions in the history are apparently useless and should be deleted. In some organizations only abnormal findings are recorded on the examination form.

4. Avoid unnecessary pre-placement examinations. As an example of this, one man had six pre-placement examinations in three months in going from one plant to another. In one plant it took two weeks for the final recording of the examination and by this time half of the men were gone somewhere else. It is suggested, therefore, that men be allowed to work for two weeks without an examination. Some application blanks purposely cover all abnormalities, but positive findings are significant and are the only ones calling for real investigation. Re-examinations should be done on persons who return to work, thus putting the examination procedure where it can do a great deal of good.

5. The examination form should be a very simple one, allowing for inspection, temperature, pulse and respiration, blood pressure, vision and hearing—and most of these can be done by a trained nurse. What challenge is there to doing physical examinations all day long? The physician is certainly entitled to some sense of accomplishment in his work.

In the second portion of Dr. Holmblad's presentation, about securing and training technical assistants for certain industrial health procedures, it was pointed out that there has been a development of certain duties for trained technicians, the clinical laboratory technician being an example. In 1938 there was a registry of medical technicians brought about through the activities of the American Society of Clinical Pathologists. The technicians agree to work under the supervision of a qualified physician, and to do no diagnosing or treatment, or even to suggest such.

We might imitate the situation with regard to dental technicians, who frequently have only practical training.

Medical technicians should have some specialized training, but it might be possible to set up certain standards, aptitude tests and other tests which would definitely shorten the preparatory period. These technicians are also entitled to satisfaction in their work, as well as earning a living.

All technicians of all kinds must have adequate medical supervision, and there must be no attempt to diagnose or treat the patients. They can, however, take medical histories, height and weight, color, perception and vision, and perhaps temperature, pulse and respiration. Sometimes the so-called ward men develop into very good technicians, an example being one such who developed a technique for staining and identification of malarial parasites.

Technicians, moreover, can handle supplies; do filing and other secretarial duties; act as matrons; and make inspections of plant housekeeping—it always being understood that the duties shall be specifically delegated and that they shall be supervised by qualified physicians.

In conclusion, the use of technicians and nurses aids offers a solution to the problem of a shortage of professional personnel.

DR. ORLEN J. JOHNSON discussed the subject "Outline of Procedure for Nurses in Industry: Report of the Council on Industrial Health."

There is now a broader responsibility everywhere for industrial nurses. A study of the nursing activities in 700 plants has led to requests for the publication of standing orders for nurses as examples of what should be provided.

The interjection of a third party does not alter the responsibility of the nurse. In a large plant the problem is simple, and in such places supervision is usually quite well done. In smaller plants the work may be done through suggestions of the local health committee.

Physicians should visit their plants and issue standing orders. Numerous agencies in the community can be used as assistants in these problems.

The duties of nurses were outlined, as previously published by the Council. Standing orders for specific conditions are a part of this program. It is the aim of the Council to assist in every way during this period of expansion so that the merit of industrial health services will be apparent to industrial management.

DR. M. H. MANSON discussed "Putting Your Medical Records to Work."

There is an unequalled opportunity for the physician to contribute to industrial welfare measures, and this can be done in direct proportion to his knowledge of industrial records and their use. In most instances the records are totally inadequate; as an example, in an aircraft corporation employing 10,000 persons there were only two nurses and such records as could be made of dispensary calls.

It is quite evident from a study of the present situation that if any aspect in industrial health work suffers, records do. Physicians must take the initial interest. It is quite probable that with the rush for production the number of examinations may be fewer. Many times only the rejections have been used as statistical data. There is a wealth of information buried in the files which should be analyzed and compared with other groups; this will give a baseline of abnormal conditions and a picture of the national health situation.

The speaker suggested that the Council on Industrial Health and the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS sponsor an outline for work-sheet analyses of examination data.

In a survey made by the National Association of Manufacturers, it was pointed out that only 21% of organizations in that survey did periodic examinations.

The only study of occupational mortality rates that has ever been made is the one often cited, by Whitney, sponsored by the National Tuberculosis Association.

A great deal can be learned about disabling conditions, and material can be obtained for the possible confirmation or refutation of our ideas of certain physical conditions. Moreover, there is indicated a specific need for the study of causes and the prevention of them, with reference to illness and injury.

Absenteeism figures show the relative importance of illness. Illness rates three times more important than emphasis actually given to it in determining the number of absences and days lost—this because of the inefficiency both before sickness and after returning to work.

A series of lantern slides exhibited different forms; a check sheet for pre-employment and periodic examinations; the incidence of absences in the experience of the Boston Telephone & Telegraph Company; a form for visitor's report; forms for absenteeism records on a percentage basis for different individuals; a code for various categories of procedures and diagnosis; a form for the time record of visits to the medical department; and forms for work-sheets which are later transferred to punch cards when calculating absenteeism data.

A survey of the literature from 1937 to 1942, inclusive, shows that a great deal more is being written on poisons and dermatitis, on injuries, and on tuberculosis and syphilis; strangely enough the smallest number of articles has been written on vitamins with reference to industrial use.

What is urgently needed is more thorough records, more analyses, and better exchange of information.

DR. FRED B. WISHARD discussed the subject "Processing Industrial Physical Examinations."

This presentation was the same, as indicated by the speaker, as that given at the General Motors Medical Conference in April, 1942, and published in INDUSTRIAL MEDICINE, June, 1942.

Lessons were taken from the American production system in processing techniques in physical examinations, emphasizing the following principles:

1. Progression from one phase of assembly to the next.
2. Elimination of repetitive operations.

It is necessary that an atmosphere of order pervade the whole medical procedure, with each step properly placed in sequence and essential to the completion of the finished examination.

This is necessary for two particular reasons: (1) the need for using available manpower to best advantage; and (2) waste motion (or material) represents an increased production cost which, in a highly competitive market, directly affects sales and profits. This is one essential difference between private industry and politically controlled or operated manufacturing units.

In planning the layout, the first step was to classify contacts into one of three main groups:

1. Pre-employment physical examinations.
2. Employees off sick, reporting back for duty.
3. Employees on company time reporting for treatment, examination or consultation.

It was possible by the layout, exhibited and illustrated by lantern slides, so to route these different types of persons that there would be no confusion and so that the groups would be kept away from each other.

The various techniques were described and also the routing of the individuals for these procedures, these being illustrated by slides. By this plan it is possible to examine approximately 100 persons a day and to keep them moving. The plan has also doubled the efficiency of the examination procedures, and keeps applicants for employment from coming in contact with other activities of the department.

DR. HART E. FISHER completed the Tuesday afternoon session with a lecture and demonstration on "Resuscitation." Slides were used to illustrate the fundamentals of resuscitation from electric shock, showing the factors of cause of the shock, treatment and prevention.

Demonstration by a first aid team showed the prone pressure method, including changes in operators, and the work of an operator on two victims. Digital pressure points were demonstrated in the neck, jaw, shoulder, arm and groin. Bandaging of head, shoulder, eye and hip was demonstrated. Transportation methods of the injured were detailed, including the "piggy back," pack strap, and one man assist.

DR. RAYMOND HUSSEY, presided at the Tuesday afternoon Symposium on Rehabilitation.

DR. JAMES H. BIRAM was the first speaker, his subject: "Rehabilitation—Recent Developments in Connecticut." He described the experiment begun October 22, 1942, involving job applicants with cardiovascular disease, varicose veins, hernia, vision defects, minor orthopedic defects, diabetes, and similar minor conditions. When, with relatively short treatment, such applicants can be put to work, they are given the necessary treatment immediately. This is paid for by the Rehabilitation Division of the State Department of Education. Repayment is undertaken by the individual on an installment basis, though inability to pay does not disbar anyone. After a month's trial in Hartford County, the program was established on a state-wide basis. Colt's has had over 30 cases of varicose veins operated on under this plan, almost all of whom are now working in the Colt plants. The time since the program was put in effect has been too short to report on more than these results.

DR. ALFRED P. SOLOMON discussed "Psychiatric Problems in Rehabilitation." The patient with whom the psychiatrist is most concerned is the one as to whom the return to work is the most protracted. Delays in cases of this kind have various causes, related to personality types. Dr. Solomon outlined these personality types in careful detail, following with a thorough analysis of the dynamics of such patients' behavior. He stressed the points that over-paternalism should be avoided in efforts to restore such patients to their working status; that they recover more readily in surroundings away from those wherein the cause of the disability arose; and that the average period for treatment that will result in complete rehabilitation is six weeks. He recommended the gymnasium as an effective means of treatment, and closed with emphasis on the psychiatric factors in the whole problem of rehabilitation. The discussion which followed took the form of questions propounded from the floor, with comprehensive answers in each case promptly given by the essayist.

DR. JOHN S. COULTER presented the subject "Physical and Occupational Therapy in Rehabilitation." He defined rehabilitation in the terms adopted by the Council on Physical Therapy; cited an effective illustration from the recent work on fractures by Watson Jones; and stressed the facts that rehabilitation measures should be directed to the mind as well as the body, and that physical and occupational therapy are vital and essential factors in proper treatment. He concluded on the note that present army methods in this regard leave much to be desired.

In the discussion Dr. Biram spoke briefly on the prompt and effective measures now being used by certain industrial medical departments. He said that his company had a physical therapy department as complete as that of any hospital in Connecticut; that 75% of the employees injured

are returned to work the next day, including even practically all of those who have flexor tendon injuries; that extensor tendons are returned to work the same day; that the majority of the injuries sustain only minimum disability; and that the psychic disablement feature has been almost eliminated.

Dr. Galbraith told of the excellent rehabilitation work being done in Toronto; rehabilitation starts immediately after the accident; early contact with the methods and measures to be used in the rehabilitation tends to prevent the development of psychoses; physical therapy and occupational therapy go hand in hand.

TERRY FOSTER'S paper on "The Future of Rehabilitation," was read by R. W. Teeter. There are at all times about eight million people in the U. S. with disabilities of various kinds; six million of these are normally employed; two million are unemployed. The annual increment is about one million; the problem of rehabilitation involves, therefore, this million and another from the two million unemployed. In normal times the working capacity to which these can be restored, so far as industry is concerned, is potential rather than actual; in these times it is folly not to make the most of all the working ability they can be made to contribute. The present program so far as the government is concerned is inadequate; it will continue so unless and until remedial measures now pending in the new Congress shall have been enacted into law.

Wednesday Morning

THIS meeting was a Symposium on Nutrition in Industry, a joint presentation by the Council on Foods and Nutrition and the Council on Industrial Health.

DR. FRANKLIN C. BING opened the program with "Criteria for the Evaluation of Nutrition Experience in Industry."

There has been much written on nutritive states and many conflicting statements. As an example, one piece of advertising calls attention to eating doughnuts between meals to prevent absenteeism. Chewing gum has been fortified by ascorbic acid, and gum drops have been fortified with various types of nutrients, and crackers have met with the same fate.

It is the purpose of this presentation to mention some criteria of evaluation, and it will be seen that there is no difference from other scientific studies, in general.

1. A complete investigation must be done. By way of example, reference was made to the investigations of Karshner and Goldblatt.

2. There should be appraisal of diet. This should have reference to specific age groups. Weighing food gives, of course, an adequate basis on which to make comparisons, although a record of the diet is also important. There is great need for improvement of tests of dietary adequacy and nutritional adequacy; such tests should be made objective, if possible.

3. There should be suitable controls. In some instances of well conducted studies there have been three groups used, namely the feeding group, the group to which placebos were given, and the control group.

4. It is also well to point out that verifications of findings by other investigators form valuable criteria upon which to proceed.

The question has often been asked if one can improve the absenteeism record, the accident record, and efficiency and production; the answer is that this can be done in time, but other factors are concerned. One must realize that the principal results of food are on the body itself, and that there is a physiological basis for improvement. It must also be recognized that the measurement and interpretation of the phenomena exhibited in these studies belong to special investigators.

The Council has found no reason to change its ideas, given in the report a year ago, with reference to the use of vitamins in industry. Controlled experiments are now being done in this respect.

The diets of many persons can be improved, with resulting better health. The worker is the chief beneficiary of these procedures. Some of the investigations have shown that food habits in workers in selecting foods are deficient, and that there was a deficiency of 14.8% of vitamin A; 24.8% of calcium; 43.2% of riboflavine; and 46% in ascorbic acid.

It is possible to accomplish great improvement in the health of industrial groups, and much information in this regard is available. Proper diet is a definite factor in good health, and is easily secured and readily available under ordinary circumstances.

Pediatricians, of course, understand food values and growth factors perhaps as well as any group of persons. Determinants in adults, however, are not so well understood or worked out.

In conclusion, it is obvious that the diet forms a vital element in warfare and the fate of nations.

DR. ROBERT S. GOODHART spoke on "Progress in the National Program on Nutrition in Industry." This was a discussion of a nutrition program for industry.

Although the greatest deficiency exists in the lower third of the economic stratum, deficiency is found throughout the others and is due to ignorance, carelessness, and bad food habits. In California, for instance, it was discovered that the use of fresh vegetables, citrus fruits and milk in larger quantities would definitely help to improve the nutritional status of various individuals in industry. It was also discovered in this survey that 85% of the diets were deficient in protein.

Present conditions necessitate changes in eating habits because of the necessity for supplying foods to our armed forces and to the allies. These changes must be preceded by adequate propaganda with reference to the benefits of cutting down food rations. It is very important that the morale of war workers be sustained.

The Nutrition Division functions through 11 regional offices, and also through state committees which are now being organized. Meanwhile a great deal of the industrial work is going on through subcommittees on nutrition in industry, which have already commenced activities in various states. Arrangements have been made with the Public Health Service and the Ordnance Division for the inspection of nutritional facilities in war plants.

Important correlative factors are transportation, housing, location of markets, restaurants, and other food facilities. All of this calls for a well planned program of adult health education. In this program, labor organizations are contacted and conferences held, and the labor groups are urged to set up nutrition committees, to cooperate with management, to understand feeding problems in the plant and the neighborhood facilities, to set up programs in various regions, and to assist in distributing information through their groups and through the labor press, for which there is provided a news service by the Nutrition Division and the OWI.

The great burden of the work must be borne by the state committees and the subcommittees on industrial nutrition, and for details on local problems these bodies should be the first appeal.

In conclusion, it was strongly urged that physicians and industries call upon their local committees for any assistance needed.

DR. GEORGE R. COWGILL presented the subject "Current Nutritional Activity in Industry: A Review and Appraisal."

In this presentation, there was a brief consideration of various phases of the problem, with cited examples.

The interest in nutrition is relatively new and, therefore, some controversy is to be expected. The industrial manager is not readily cooperative unless it can be shown him that there are certain definite hazards which are obvious in the employment, where improvement in the diet will help. However, improvement can be made and assistance given in the general production program without specific hazards being present. Home makers are also concerned.

Probably more can be accomplished in one year now under war conditions, relative to eating habits, than could be accomplished otherwise in 10 years' time. Industrial physicians should be keenly interested in these problems. Many questions are still at issue, and there is a great deal of endeavor now to determine the validity of certain principles.

In 1941 there was an important conference held on Nutrition in Industry which led ultimately to an investigation in an aircraft group, the reports of which are published in the Milbank Quarterly for October, 1942. It was shown that one-half of the workers did not eat enough green and yellow vegetables—one-third were deficient in citrus products—one-third did not get enough milk—one-fifth not enough protein.

One important fact that is now known is that it cannot be assumed that proximity and availability of food will guarantee its use. It has also been definitely shown that women make poorer selections than men, partaking more freely of fancier foods and restricting their diets with a view of keeping the weight down.

Studies have also been made of exposures to toxic types of substances, for example, TNT (in this respect Foulger believes that milk has no positive detoxifying value here). It has, however, been recommended that one milligram of vitamin C and one milligram of B complex be used daily by such workers. This field should have further investigation and study.

The purveying of food also represents a phase of this problem—usually concessionaires have charge and are not fully informed, proceeding on the principle that it is best to give the public what it wants.

There is need of sound information on the selection of food. In this respect the Victory lunch special has met with considerable success, and in various places emphasis has been placed on sales appeal of meals.

Industrial physicians should appreciate the vital necessity for the scientific application of sound knowledge. It is recognized that it may be necessary to revise menus with relationship to food availability. Food demonstrations in industrial groups help a great deal and carry over into the home.

The preparation of food also constitutes a problem and can have an unfavorable effect on food consumption, particularly when food is allowed to stand for some time. The application of proper principles of preparation is important, but is not being made very largely.

There is also the problem of education through various bodies and channels; practical applications are being made at the community level, and at other levels advisory and guidance programs are being put into effect. Concerns like Westinghouse Electric and Servel have rendered a great service in this respect, first educating their own workers and later meeting outside requests. National bodies furnish much educational material; nutrition clubs have been established and courses given. Caterpillar Tractor has shown the way by enlisting the aid of local merchants in such campaigns. In Omaha, the OCD has taken over this problem. Inland Steel has made arrangements with labor groups for such activities.

The Bridgeport plan with reference to lunch boxes was briefly discussed.

Certain slogans have been developed, such as "Pack a Lunch a Man Can Work On," and "Eat to Beat the Devil" (Servel), and "The 'Dynamite Sandwich'" (Rockford).

Finally, every industrial physician now has every justification for warranting the participation of his plant in this effort, which will lead to the best use of our national food resources.

A ROUND-TABLE discussion completed the program on the Symposium on Nutrition in Industry. The panel, composed of the speakers, the chairman, Dr. Russell Wilder, Dr. Leverett Bristol, and Dr. Pett, of Canada, answered questions asked by the audience.

In Canada, ordinarily the lunch period varies from 20 minutes to 1½ hours, being not less than half an hour in most places; the period depends on the size of the group and the availability of food.

As to certain poisons, a high calcium diet is helpful in lead exposure; other poisons are being investigated.

With respect to eating habits of persons on the 3:30 P.M. to 12 M. shift, there are no definite rules, over-all sufficiency being the important point and taking cognizance of varying factors.

It is advisable to have a survey of eating habits before an educational program is started; if not, reference to a representative one should be made. An accurate list of menus for a period of a week represents the minimum information needed for a basis of recommendations.

It is believed that the effect of caffeine must be related to other foods taken with it; sugar may increase fat in the face of a thiamin deficiency.

Reference was made to an article on carbohydrates published by the Council on Industrial Health. Blood sugars should not go below 0.7 or above 1.2%. Moderate elevations of blood sugar are not harmful. Hypoglycemia must be considered in many people who periodically have low blood sugars between meals, probably stimulated by high carbohydrate meals. This may provide the answer for the consumption of soft drinks and candy bars without vitamins, which may cause a hypovitaminosis and also may lead to sensitivity to fatigue. The best way to treat this condition is to take the individual off the carbohydrate diet, restrict sugars, and put him on a high fat and high protein diet. Another factor here is the individual who eats no breakfast or a very inadequate one or eats a very small lunch, thereby throwing the burden on the evening meal. The breakfast should provide a fruit juice or tomato juice, B complex, such as enriched bread or cereal, some fat such as butter, milk, and some protein such as egg or meat.

The most likely deficiency is B_1 and B_2, which might be added to the diet, but it is doubtful if supplementary vitamin feeding would be the answer.

The standard lunch which provides one-third the daily needs and which has been recommended by the nutrition office involves four foods—meat or an alternate—two vegetables, of which one should be green or yellow—milk—enriched whole wheat product and butter. A possible fifth should be a source of calcium, such as tomatos, raw cabbage or citrus fruits. Of course, other foods can be added to these, but one always looks for these on the trays. The lunch recommended usually meets almost half the daily requirement and sometimes two-thirds, the latter of which actually seems best—this, of course, except for calorific requirements.

The nutritive value of the cold lunch was greatly stressed, contrary to the popular fallacy that only hot meals are adequate. Coffee is not nutritious, although cream and sugar may be used, but cream is probably not the best form of milk.

There has been some recent work on vitamin C with reference to the prevention of heat exhaustion, although it is recognized that large amounts of vitamin C are not lost by way of the perspiration.

The mid-shift rest with available food is generally good practice. It is now known that lack of food is a fatigue factor.

The wider use of milk in the diet can be encouraged and accomplished only by education, by providing milk at the lowest possible cost price to the consumer, and by continuously appealing to the worker. There is no danger of an excess of milk, and it is by far the best beverage obtainable. Chocolate milk is better than carbonated beverages, although not as good as ordinary whole milk.

The Canadian experience with reference to beverages is interesting. The government put a tax of one cent a bottle on all types of soft drinks, and immediately the consumption of milk went up considerably and was sustained for a period of seven months, at the time of the making of this report. As another method for increasing the use of milk, certain managements in industry order a limit of two bottles per employee per day of the various soft drinks; under this system, milk again went up in consumption, and the soft drinks went below the limit of two bottles per employee per day. A third method for increasing the use of milk is by making it easy for the employee to get it.

In conclusion, it was stated that nutrition activities are vital in the war effort, but beyond that we must have a very firm basis for future educational work and application of methods.

Wednesday Luncheon

DR. MORRIS FISHBEIN addressed the luncheon group on the subject "Can We Eat Our Way to Health or Sickness?"

The question is easily answered, and the answer is "Yes," but there is more to defining feeding than a mere answer. Nutrition alone cannot maintain health, because there are other hazards to health, but nutrition is an important factor and very important in public health efforts. It is, of course, well known that proper feeding is vital to growth, but it is doubtful whether it plays any important part in resistance against infectious diseases.

Ideas change so rapidly with respect to feeding that it is not wise to make dogmatic statements on small amounts of evidence, and the experiences of our older men in the field show this. As an example, some years ago it was conceded that vitamin D should not be added to foods or used to reinforce or fortify foods; now we know that this is not tenable.

Scientific facts have been exploited by various commercial groups, although developed scientifically by scientific men; there is a middle group of educators who must prepare the material in the proper way for the proper popular consumption.

Controlled experiments are necessary; these have reference to the size of the group, the nature of the personnel, and varying factors.

Practical difficulties exist in feeding large numbers of persons in industry, with respect to the preparation of the food and its availability. There is a tremendous wastage of essential food elements in this country, and a widespread exploitation of vitamin and mineral mixtures which has gone far beyond control. But control may be automatically exerted by the lack of supplies consequent upon the war effort. There is undue waste in the serving of large meals, and even after a large meal frequently one finds that certain individuals will supplement the large intake of food with vitamins and minerals, of which there is a wholesale dispensing in industrial groups.

We must be careful in our public statements concerning nutrition problems; for example, the B complex vitamin and its component group are not even now totally understood.

There is also the question of butter versus oleomargarine reinforced with vitamin D—some groups would have us think that the reinforced oleomargarine is the equivalent of butter.

The problem of world feeding will be for the American people to solve and will involve the necessary funds, the working out of proper diets, and the providing of scientific information for the prevention of waste and the diagnosis of nutrition disorders.

We are now proceeding along good practical lines in making information available to industry through well organized plans, as mentioned in the key industries, but such plans are not interchangeable either among industries or among communities.

It is well to know what others are doing, and it is well to set examples for wide usage, which can be adapted locally.

We must approach the problem humbly, realizing that we do not have accurate knowledge on all its phases; and we must realize that our knowledge is limited and that we can recommend only certain procedures scientifically.

We are a careless people—we shop carelessly, and keep and prepare food carelessly. We should eat about equal amounts of fat, carbohydrates and proteins, the latter about 15% as the minimum. We should also realize that there is no full knowledge on the role that vitamins play in our daily diet; and last, but not least, good wholesome and common foods are necessary—man was not made to exist on a diet of pills and capsules.

Wednesday Afternoon

THE Wednesday afternoon session was devoted to the Chicago Conference on The Health of Industrial Workers.

The Chairman, DR. FREDERICK SLOBE, stated that the meeting was dedicated to industrial health, especially with reference to the war effort, and particularly emphasizing the public health phases of industrial health.

Dr. Carl M. Peterson read a paper on "The Urgent Need for Better Local Industrial Health Organization."

At the outset it can be stated that nearly every job in industry today is safe and healthy from the viewpoint of the information now possessed by various professional groups. It is necessary, however, to agree on the application of the information to a greater extent and more widely than ever before.

Industrial health is good business, and some of its objectives and elements may be named as follows:

1. Competent physicians practicing preventive medicine, surgery and hygiene during regularly appointed hours in the working environment.

2. Industrial nursing service, under supervision and standing orders.

3. Industrial hygiene service for the control of exposures, supervised by competent physicians.

4. A health supervision program, including first aid and subsequent care of occupational illness and injury; health educational programs; the correlation of community resources; and a system of records to be used as guides.

Three steps are necessary in the establishment of such a program:

1. Enlisting the interest of the employers large and small, and informing them of the various kinds of services which are necessary.

2. Convincing the employee that he stands to gain most of all—helping him to recognize the necessity for the guarding of his health on and off the job—lasting values will result only when these points are carefully worked out.

3. Understanding the responsibility of the medical profession—to keep them placed where they are as far as possible, and to prepare for increased demands which are to come through proper local organization.

The committees on industrial health which have been organized in the various states and counties can be of great help in coordinating the activities in industries and in the community. These committees are made up of representatives from industrial physicians, from private practitioners, and from the local departments of health. Coordination is sought between government, industry, labor, and medical groups, using local facilities and supplemental sources. The needs of the small plants are especially stressed in these programs. Among some of the activities of such committees are the following:

1. A list of the names of physicians who can serve in industry is being requested so that a file may be made.

2. The community facilities are appraised.

3. Meetings scheduled with the chambers of commerce and other industrial groups to heighten the interest, providing information on the essentials of medical service in industry, the necessary supplies and cost, emphasizing health education on non-occupational factors causing lost time, and giving information concerning the advisory capacity of the various local committees.

4. An open meeting is held for all representatives, and means for promoting wide application of plans are discussed.

5. Action of the local medical societies is encouraged by placing emphasis on the problems with regard to lost time in industry, the coordination of community facilities, the benefits to be derived from industrial medical service, and a program for the continuous education of the medical profession.

It is thus hoped that the industrial health problems can be solved through the various community organizations, with the responsibility for local organization and accomplishment resting on county medical society plans which are guided by state and national advice.

DR. MILTON H. KRONENBERG discussed the subject "How the Small Plant Can Conduct a Health Program."

In large plants, the medical department has become an integral part of the organization, and has been accepted as a regular feature. It has justified and paid for itself, in many instances. The present effort is now to carry into small plants a similar type of organization. In Illinois, for example, 70% of plants employ under 250 persons.

This is not a new problem nor can a specific program be

laid down because of dependence on varying factors in different communities and industries. It is, therefore, proposed to give a resume of the phases of the problem and make comments.

In general, executives realize the necessity for health services in small groups, but do not know how to go about beginning such a service or where to get the information. Most small plants have only safety provisions, so that the older workers' example is all that the other employees get with reference to health education.

In the Illinois Department of Health, Division of Industrial Hygiene, there has been an available service on this subject since 1936; this group has chosen to serve and advise rather than to enforce, to guide rather than to police. There is already considerable information in print which can be used as basic material for a start. The department has found industries most cooperative. There is no charge for services, the information being unbiased and the findings scientific in nature. The service provided does not interfere with the plant production nor with private physicians.

In setting up services for small plants, grouping of plants has proved practical, one physician serving several. Essentially there is cooperation with the physician on emergency service and also with the insurance companies. The Philadelphia plan was cited in this respect, which provides for examinations, plant inspections, health and first aid education, care of injuries, emergency care of non-industrial injuries and illness, and an hourly schedule for physicians and nurses, which had to be increased after the plan was in operation for a short time.

Among the standards suggested for such services are:

1. Some or all of the work to be done on the factory premises.
2. Provision for adequate physical examinations.
3. Provision for adequate dispensary service.
4. Provision for surveying the physical make-up of the plant, including sanitation and hygiene services.
5. Detailed records, and, in plants where there are more than 250 employees, a daily dispensary service on a full or part time basis.

There must be an intelligent basis for the selection of physician—this must not be left to chance. Having the telephone number of a physician does not constitute an industrial health service.

The National Association of Manufacturers' plans for space and cost in small plant services were cited, having to do particularly with physical examinations, environmental surveys, and knowledge concerning materials and processes.

The standard for rejections with regard to examinations is the one set some time ago—whenever the individual is a danger to himself, to others, or to property. The extent of the examination is left to the responsibility of the physician in charge.

Knowledge of the use of materials is vital and, if these are potentially harmful, leads naturally to special periodic examinations. Such knowledge helps to avoid confusion in diagnosis. The physician must know about these things if he is to function properly, and such problems are ordinarily not encountered in private practice.

Various agencies can provide special information in this respect, including private consultants, departments of health, insurance companies, and universities. A survey of the plant is essentially an industrial health inventory. Tests should be made, rating the exposures, and giving recommendations for control. Periodic check-ups of such environmental conditions are necessary for adequate knowledge on a continuous basis.

The necessity for nurses in these services is quite apparent. They can be supplied by various agencies. Nurses can become invaluable, assisting in examinations and follow-up activities, acting as a liaison between the safety, personnel and state health departments, coordinating community facilities, increasing the scope and efficiency of industrial relations, developing recreational facilities, and acting in an advisory capacity on diet problems.

Ordinary illnesses constitute a big problem, the solution lying in proper educational activities, there being available a great amount of information in pamphlets, posters, movies, and the like. Workers in general cooperate very well if they are properly informed, but the material must be personalized.

Records of adequate type and extent are necessary for success in industrial health services; they are particularly important with reference to future claims, and form the basis for continued progress and changes.

There is great need for preventive procedures, and there is much help available on this subject. The losses are greater in industry than most tax costs.

In conclusion, the benefits to be derived from health services in small plants will reflect themselves in decreased compensation insurance, decreased production costs, decreased absenteeism, decreased labor turnover, and increase in the good will of the community.

DR. FRED H. ALBEE, being unavoidably absent on account of sickness, sent his paper. The presentation was to have been made by Dr. Philip Kreuscher, who was delayed in getting to the meeting. Accordingly, Dr. Joseph Chivers presented a press release of Dr. Albee's paper.

The standards of physical fitness have been relaxed in order to employ men, and have involved the fitting of the standards to specific employment. The result has been that anyone who can produce is being hired.

Facing manpower shortage of over 11 million, it has been necessary to use women, the old, the very young and the handicapped; the latter can be placed, however, if more time and imagination are used, and with better supervision. However, we must remember that years of wrong ideas have set up poor psychological attitudes with reference to the employment of the handicapped.

New Jersey was the first, in 1919, to have a rehabilitation law. The result has been that in many instances there has been a repair of defects and training for other occupations, conducted in cooperation with employers.

Examples were given of rehabilitated employees, such as a man without a voice, one crippled from infantile paralysis, a man with one arm, blind persons.

Many agencies are now in existence, including state, local and national rehabilitation groups, which can supply information with reference to this problem.

The handicapped have a peculiar loyalty and appreciate the opportunity of doing work, which makes hiring them a wise move on the part of management.

The Ford Motor Company has thousands of handicapped persons at work. At a plant of the Western Electric in New Jersey, during one year's experience with 652 vocational handicapped employees, it was found that 7.9% more normal workers resigned; 7.5% more of the normals were relieved of their employment; 7.5% more absences occurred in the normal; 5% more accidents in the normal. The general conclusion was that the handicapped persons are equal to the best among the normals, and some are really outstanding. Finally, it must be emphasized that handicapped people are indeed useful and can be employed in increasing numbers.

DR. JOSEPH H. CHIVERS opened the discussion on "Problems of Employing the Physically Handicapped."

The types of defects with which difficulty is ordinarily experienced are those that get worse with time, such as deafness, quiescent tuberculosis, and similar conditions. These often evolve serious problems later, and mean assuming considerable responsibility.

Data on blindness, tuberculosis, heart disease, and orthopedic difficulties were summarized.

A survey of present practices is being made. In two states cooperation with state bureaus of rehabilitation has been accomplished. Pennsylvania has done a great deal of work, but on the whole there is a total lack of any coordinative program.

Connecticut is one state in which much has been done (as noted by Dr. James H. Biram and also by Mr. Chester). It seems that similar procedures could be used in other states to advantage.

GEORGE WARDLEY continued the discussion from the viewpoint of the employer.

Proper means should be taken for rehabilitation before

employment. A classification of handicaps can be made according to the following groups: (1) handicapped as found on examination; (2) handicapped by an industrial accident; (3) handicapped as found when seeking employment.

Many times the defect can be remedied fairly promptly, and at other times the handicapped person has to be placed in another occupation. The cooperation of the physician is vital in all respects.

Various case histories were submitted as illustrations of the employment of the handicapped. For example, a crane operator was without depth perception. It was felt necessary to change his occupation, but he had previously been a very safe operator. Eventually it was found that he had a habit of turning his head, which made it possible for him to see effectively. He was, therefore, allowed to continue. Another case was that of a switchman with an impairment in hearing. Tests revealed that he heard whistles and gave orders readily, and he was, therefore, left on the job.

For those employees who are handicapped because of industrial accidents, industry must provide adequate and prompt treatment and physical therapy, and establish practical rehabilitation measures. There is considerable room for extending training here.

In the third group in which an applicant for employment is discovered to be in a handicapped condition, a big problem is presented. There is no direct responsibility for industry, but there is considerable leeway on standards which make it possible to admit many persons who were formerly refused employment. Society has a responsibility, and should make provisions for rehabilitation of this group.

The handicapped should return to work as soon as possible, thus assuming at least partial independence for final recovery. The person must be assisted in every way, but he must realize that he is the main beneficiary of rehabilitation measures.

An outline of the personnel and functions of the rehabilitation committee at Carnegie-Illinois Steel was given.

In 1929 a program was begun in the industries in this state and 104 people were rehabilitated in one year, 87% of them being in industry, mostly in Cook County.

All of these examples show the possibilities which lie in the rehabilitation program for the industrially handicapped.

ALFRED J. BORAH continued the discussion on the phase of the Industrial Commission's attitude.

It is felt that the commission, definitely charged with the administration of the various statutory acts, is more or less "in the middle." If the handicapped person has his difficulty aggravated by his occupation an award is in order. Examples of some of these difficulties are expressed in the treatment given to luetics, in the cleaning up of wounds.

In the losses of various members of the body reported to the rehabilitation bureau, contacts have been made in 80% of the cases. Placement is usually no problem, on account of the cooperation of industry and the rehabilitation bureau.

Hernia is probably the greatest problem, and settlement in lump sum has been practiced for some time. However, in the past year the commission has discouraged such settlements, as it has been found more practical to operate on the man and have him eventually a functioning unit in industry than to give him a lump sum and have him still possess his handicap. It seems likely that a fund should be set up for this situation which would lead to prompt action and restoration.

The commission also feels the need for a fact-finding body on research in occupational diseases, in the middle west. In conclusion, medical attention and rehabilitation measures go a long way toward solving the problem of previously handicapped workers.

FRANK R. PEREGRINE continued the discussion with reference to the medicolegal aspects.

The Supreme Court has said that all employees are to be treated alike. It is interested in what effect the injury or the disease had on the individual employee at the time, regardless of the existence of handicaps, defects or other conditions.

Tuberculosis with cavitation, an employee with one eye, an employee with varicose veins, and an employee with diabetes, are all examples of risks which may be causes of future expense to the employer. Arteriosclerosis also comes into this category. So the costs of these conditions must be considered, because business is a competitive field.

Great difficulties arise in the overlapping of disease conditions into non-occupational conditions, with the possibility of the responsibility being placed on the employer for something which did not occur because of industrial environment. For example, there are cerebral hemorrhage, aortic aneurysm, and many others of similar type.

The legal liabilities incurred in indiscriminate hiring cannot be encouraged to a much greater extent than is now practiced.

An example of what happens is the present hernia situation; once greatly abused, it is now controlled very definitely by adequate legislation. Whether this can be done in the case of the handicapped person suffering from a variety of conditions is not evident at the present time. Legislation for the control of this problem should not place either employees or employers at a disadvantage. There is a possible remedy in lowering wage standards for the handicapped, such as exists in the uprating of life insurance premiums for those who have handicaps or personal defects; this can be done for a few cents a week per employee. By this practical method difficulties could be handled in an economic fashion.

DR. PHILIP KREUSCHER concluded the discussion on the problem of employing the physically handicapped.

Many years ago Dr. Murphy used to say that when consultants agree the patient dies, and it is hoped that "this patient" doesn't die. True rehabilitation involves the physical, the mental aspects and morale, and necessitates guidance by those who are interested, painstaking, and persistent. There must be a rationale of approach to the solution of the problem—surgical rehabilitation must be first and foremost, and then comes physical therapy. There must be a thorough diagnosis and evaluation of disability—psychiatric principles must be administered with intelligence for the building up of morale.

DR. CLARENCE D. SELBY completed the afternoon session, discussing the subject "Why Do Employees Stay Away from Work and What Can We Do About It?"

With the expansion of industrial activity in the war effort, there has been a manpower shortage, resulting in the employment of women, the old, the very young, and the handicapped, all of which has brought absenteeism into the limelight. As there has been an industrial conversion, so there must be a conversion of medical and health procedures to maintain health at the highest productive level.

The pre-employment examination must now be changed to the pre-placement examination and must be applied to all persons possible; industrial hygiene measures must be practiced widely and applied intelligently; there must be relief from worry, attention to nutrition, prevention of fatigue, all of which are in the work.

The 1941 experience in absenteeism is based on a survey of 104 different industrial units in 36 states, in which the absenteeism exceeded seven calendar days and was charted in cases up to 92 days of continuous absenteeism. Early in this survey it was discovered that absenteeism was 50% more than in peacetime, but this condition is now being remedied and is tapering off. Plants under 20,000, while formerly showing about 12 to 15% women, contain at the present time from 50 to 75%.

Comparing the females with males, the female absenteeism rates have varied from 196 per 1000 to 548 per 1000 (per year), with an average of 320; days lost were 34 per case to 60 per case, with an average of 47 days. In males the absenteeism rates varied from 38 per 1000 to 144 per 1000 per year, with an average of 89; whereas the days lost varied from 25 per case to 75 per case, with an average of 31 days.

Industrial women workers are more likely to be absent, and they lose more time when they are absent. Disability rates from respiratory infections are more than double those in males and almost as high as for all male rates.

Recommendations for prevention of respiratory disease varied greatly among the medical directors of the plants surveyed. All agreed on the importance of rest, exercise, diet, proper clothing, temperature control, no excesses, and isolation of cases. There was not, however, any agreement for the use of vitamins and cold tablets. It is now understood that the rest factor is more important in preventing such infections. One plant kept persons who coughed, away from work as long as there was any cough present. One plant physician offered advice for employees in an educational program for the prevention of colds, to report, if there were any signs of a cold, for temperature, pulse and respiration examination, and first aid was given at the plant dispensary. Most physicians were against early return to work after respiratory infection.

It is acknowledged that an even temperature in working areas (as far as possible) presents a great deal of difficulty in some places.

It is realized that there is nothing new in these recommendations, but that they may have some virtue. We must think of respiratory infections as an environmental disease (environmental in that it is communicated through human environment), and as being a very costly problem. Some recommendations may be made for protection:

1. Periodic correction of physical defects.
2. Susceptibles should avoid temperature variations, crowding, and air contaminants.
3. Appropriate clothing should be an important item, according to the weather, the job, and other environmental influences.
4. Industrial hygiene investigations, and a study of causes.
5. Employment should be deferred, isolation should be practiced, or sick leave granted until temperature is normal, in persons who have infections.
6. The medical department should be used early.
7. Those having late symptoms should be sent to private physicians.
8. On re-examinations when coming back to work, defects should also be corrected if necessary.
9. Records should be kept on the personal incidence of respiratory infection by departments, for proper comparison.
10. Before and during the cold season, an educational campaign should be carried on among employees.

Rates for digestive diseases are double in women as compared with those for men. Here is mentioned the possibility of employment of a nutrition counselor, practically to work out this problem.

Appendicitis in men is on the increase—in this organization causing 112,000 disabling days in a period of a year, with an average of 45 days per case. The key is that the neglected cases are far more serious. Abdominal pain should be reported promptly to the medical department and arrangements made with the family physician.

The rate for gynecological diseases is 56 per 1000, this low rate probably being due to the confidential nature and modesty. It would here be advisable to hire a female counselor.

Nervous disturbances are six and a half times higher in women than in men, although they constitute less than 3% of the total amount of absenteeism. There is a real problem here, however, which necessitates the provision of a woman counselor.

Pregnancy causes an absenteeism rate of 73 per 1000, which is about equal to the respiratory infection absenteeism rate. Formerly premature termination of pregnancy occurred in about 18% of cases and has now increased to 24%. This is a problem which needs investigation and regulation.

In summary, the highlights of the 1941 experience in a large organization have been given, in conditions that were formerly thought not to be important to industry. A continuous study should be made of absenteeism experiences. Under the impetus of the war it is now apparent that industrial medicine has undergone considerable conversion.

Wednesday Dinner

THE Wednesday dinner session put the finishing touches on an extremely interesting three days' program. Presiding was Dr. James P. Simonds, Acting President of the Chicago Medical Society, and the Toastmaster was Sterling Morton, President of the Illinois Manufacturers Association. The Honorable Dwight H. Green, Governor of the State of Illinois, gave an address on the subject "We Have a Job to Do to Improve the Health of the Industrial Worker." Governor Green emphasized the necessity of looking after the worker's health, this being second only to the importance of expansion and production, and the proper adjustment of production lines. He was certain that the health of the workers played an important part in the war effort, and equally emphatic in stating that manpower was one of our great problems. Throughout his interesting address, the part played by industrial health was brought in for much emphasis.

DR. WALTER ALVAREZ concluded the program of the Congress by speaking on the subject "The Care and Feeding of Executives."

Advice was given to industrial and business executives to "slow down," take adequate rest, and learn to let assistants do some of the work.

It should be realized that every able executive in industry today is a tremendous asset, not only to his company but also to the country as a whole. Furthermore, it must be understood that the mortality of executives and other overburdened brain-workers, and the incidence of serious degenerative diseases among this group, appear to be considerably higher than among men who do manual labor.

Specifically, Dr. Alvarez recommended the following health rules:

1. Slow down.
2. Take a month's vacation, or at least a short rest period now and then.
3. Delegate authority to others.
4. If you cannot sleep, a soporific will be helpful.
5. Do not smoke too much.
6. If you do play, do not play too intensely.
7. Don't get angry.
8. If you are gaining weight, avoid fats and sugar.
9. If your heart muscles are not so good, walk and live at a slower pace.

The phenomenon of nervous breakdowns among executives is quite common, probably because such men not only work too long hours in the office, but also take up most of their time outside with talking shop and making contacts which will apparently be helpful.

The usual executive was characterized by Dr. Alvarez as a man who lives intensely and lustily and does strenuously whatever he sets out to do.

Some of the common symptoms of nervous breakdown include a sense of impaired health and energy; getting up tired in the morning; "playing out" by noon; feeling a need for forcing the brain, or feeling a sense of tension. In addition to these come insomnia, increasing irritability, impatience, ill humor, and "a desire to snap heads off."

An interesting feature of this talk was Dr. Alvarez's analysis of the overwhelming complexities of modern affairs—science, industry, government—as compared with the comparatively short time given the human organism to adjust itself to them. It is less than a half-dozen generations since life was rather primitive and its demands on the mind very much less severe. In some of the tropical islands the inhabitants still live according to their primeval customs. Even in this country there are many bright young men of foreign extraction whose grandparents spent all of their lives in a routine of simplicity and easy habits. The brain, therefore, can't take it. "Only a small percentage of men in the nation have the type of keen brain that can grasp the big problems of modern science and industry. What is worse, is the fact that even these keen brains are unable to stand for any long time, the strain of constant and heavy use." Nevertheless, Dr. Alvarez concluded with emphasis on the importance of the executive as a national asset; he emphasized strongly that the executive must look to his health, for the nation's sake.

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War Conference

THE AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, and the NATIONAL CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, will combine their annual meetings this year in a War Conference.

Their joint meetings will be held in May, 1943, at Rochester, New York. DR. WILLIAM A. SAWYER, Medical Director, Eastman Kodak Company, is program chairman for the industrial physicians and surgeons, and DR. JAMES H. STERNER, of DR. SAWYER'S department, is in charge of the program for the hygienists. The Governmental Hygienists will present their program on the opening day of the Conference; this is their sixth annual meeting, and the first one outside of Washington, D.C. For the Industrial Physicians and Surgeons this is the twenty-eighth annual meeting; as to the American Industrial Hygiene Association, it is the fifth.

This War Conference is taking shape as one of the very few medical conventions indispensable to the war effort. It is the single assembly of the year that will yield, for the benefit of *all* physicians in industry, the timely and practical values developed by those who have already made progress in surmounting, as part of their daily work, the vastly emphasized difficulties arising from the conditions of war production. The day-by-day problems of industrial medicine and surgery and their practical solutions will be the substance of all that is talked about; industrial medical practice under the unusual and changing conditions of war pressure will be the *res gestae* of all that is said, the essential stuff of which instruction is made and education formulated.

The War Conference, therefore, is this year's MUST for every industrial medical man and every industrial hygienist who can possibly arrange his time so that he can attend. The program, as will be apparent when it is published soon, is adapted so that each single day can be profitably spent. If, therefore, it is not feasible to plan for all the four days, it should be *made possible* to get in one or two. On any basis, don't miss it.

The Congress

THE Congress on Industrial Health at Chicago last month (briefed in these pages) was definitely useful; its various council and committee reports were heartening in respect of interest on the part of the general practitioners—the means and methods of basic education and, to some extent, of basic training now being made available to them reflect a healthy advancement in the last 12 months. The presentations of the Congress' program may be said to have described the industrial field for the benefit of those still new to it or not yet in it—urging them, from the standpoint of necessity, that they enhance their interest and showing them how to go about the business of getting interested. The purposes were primarily to enlarge the number of industrial practitioners, and to stress the organizational and administrative phases of industrial medicine, rather than the practical problems. These purposes were well served. They were, however, essentially objective. The realities of industrial medicine from the subjective standpoint, in so far as they appeared, were evident in the discussions rather than in the formal reports.

What is "Essential?"

AFTER listening to many discussions and reading many abstracts and items relative to the problem of essentiality as to medical men, one is reminded of Dr. Fishbein's story of the little fellow who sat at the table of a committee meeting in Washington where a score or more of the alphabetical agencies were represented. He was the only one who had nothing to say; he was so quiet that finally, after all the others had spoken, he was asked to identify himself. He replied, "I'm from the OUCH." Asked what agency that was, he said simply, "The Office of Utter Confusion and Hysteria."

This is about the situation in which we find ourselves on trying to settle in our minds what is meant by "essential," particularly with reference to medical men and medical services both inside and outside of industry.

It is quite evident that war production must continue at an even greater pace than its present accelerated movement. And it is easily understandable that community medical services must not be drained to the extent that the health of the public is jeopardized. Eventually then, there must be a balance of some sort struck as between medical services rendered to these two types of people. The indications are that a reasonable balance will ultimately be arrived at, but the confusion still exists. The problem isn't an easy one; the matter is intricate, many-faceted, full of blind alleys—as mixed up as all possible metaphors at once. The War Manpower Commission, in trying to work it out even as reasonably as may be, has a responsibility few would willingly undertake.

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THE BENEFITS OF MULTI-VITAMIN PREPARATIONS AS REPORTED IN THE RECENT A. M. A. ARTICLE[1]

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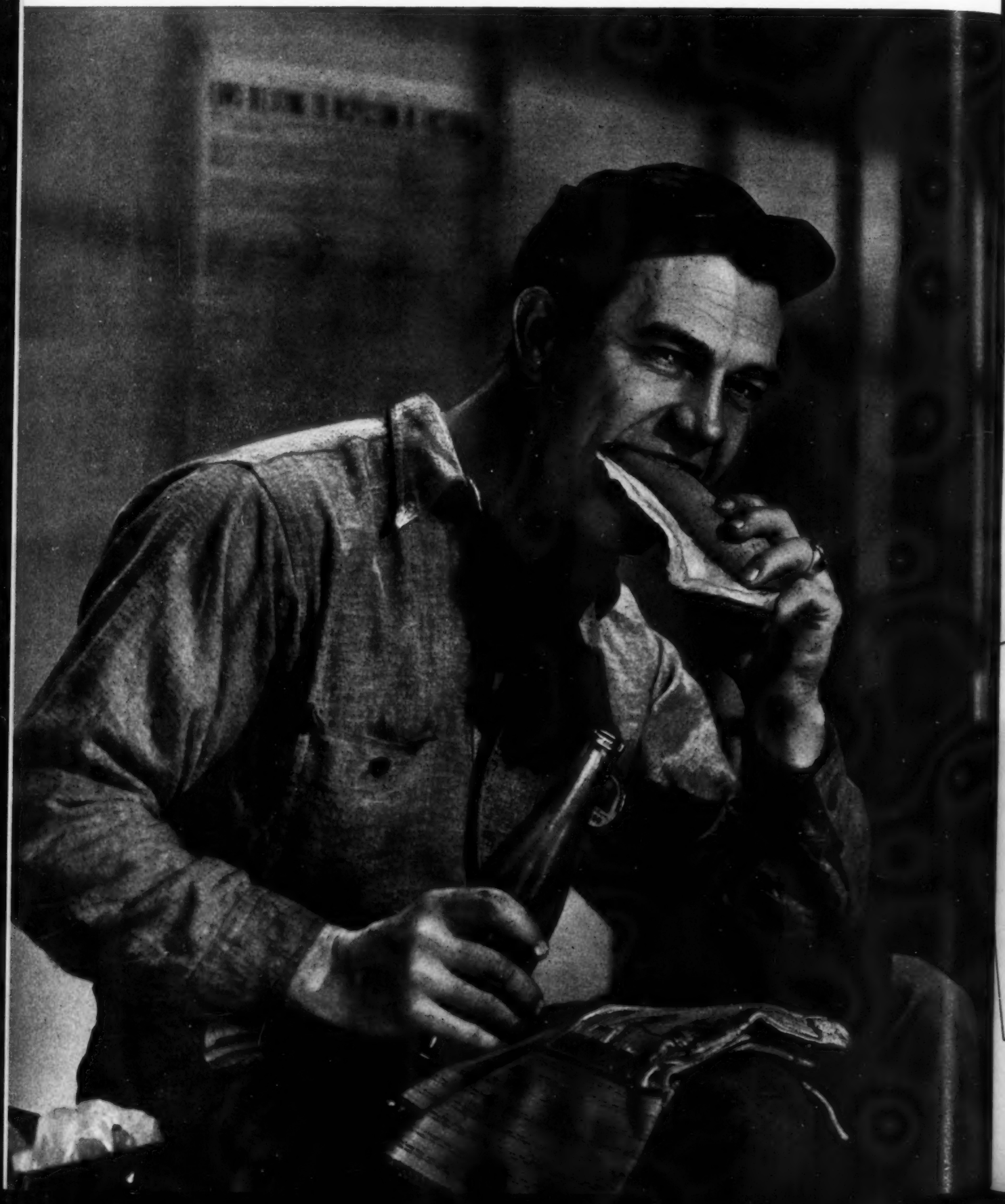

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Most factory and office employees . . . as well as many other people . . . eat merely to satisfy hunger. Their meals are varied, certainly, but more often than not they are nutritionally inadequate. Because of this, millions of war workers are suffering the detrimental effects of dietary deficiency.

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[1]Council on Pharmacy and Chemistry and Council on Foods and Nutrition: The Proper Use of Vitamins in Mixtures, J.A.M.A., 119:948:1942.
[2]Editorial: J. Nat., Med. Assoc., Vol. XXXIV:252:1942.

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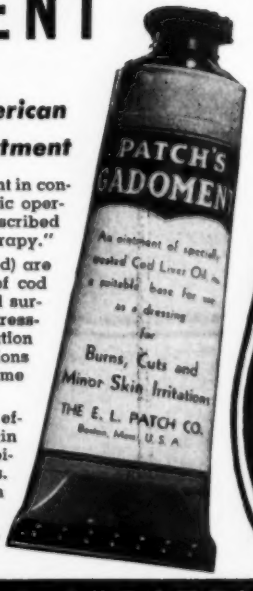

*Callahan, G. B., Ill. Med. Jl., July 1941

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Cutting Oils

—And the Skin—

CHRISTOPHER LEGGO, M.D.,
Industrial Hygiene Physician,
Missouri State Board of Health

THE object of this article is to discuss in general terms the skin problems which arise from the extensive use of cutting oils in industry, their causes, and their prevention.

These problems can be very definitely minimized by cooperative efforts on the part of the employer, the employee, and the physician. This cooperation must be based on a fundamental understanding of the underlying causes and the necessary preventive measures. This writing describes only the essential A B C's of the problem. They are usually referred to as "cutting oil dermatoses." Technically the word "dermatoses" is not the plural of "dermatitis," but for the purpose of this article it may be so considered. Those who desire more detailed and scientific information will find appended a list of articles to which they may refer.

Oils used for machining purposes may be classified into two groups:

1. CUTTING OILS. These are oils to which no water or other substance to render them soluble in water has been added. These still retain their oily character, and when the term "cutting oil" is used it will refer to this large class of oil.

2. SOLUBLE OIL EMULSIONS. These are emulsions of oil in water and are used where cooling, as well as lubrication, is desired. To an oil the refiner adds alcohol, soap and/or other ingredients which will produce emulsification when water is added. The product is barrelled and sold as a "compound." The user, by adding water to the "compound," converts it into a "soluble oil emulsion."

Cutting oils and soluble oil emulsions act quite differently on the skin and will be discussed separately.

The Cutting Oil

CUTTING oil is lemon to black in color, and has as a base a mineral petroleum oil (naphthenic or paraffine base) and retains its oil character. Cutting oils vary greatly in viscosity. The extremes run from 32" to 400" (Saybolt Universal viscosity at 100° F.). The most common cutting oils in use will run between 50" and 200". A rough interpretation of these figures may be obtained by comparing the consistency of 32" oil to kerosene and an oil of 400" to 20 SAE body motor oil. All cutting or lubricating oils have a tendency to produce characteristic effects on the skin. These effects will be described in detail because a clear understanding of the process is essential if they are to be lessened.

Oil, being thick and viscous, may enter and remain in the pores of the exposed skin, blocking them by acting as mechanical plugs. This is all the more probable if there is dirt in the oil or on the skin. These pores must be visualized as the outlets for a greasy (sebaceous) material which is poured out by the normal skin glands. The pore is the only means of escape for this material, and once it is plugged the material is dammed up in the gland and the result is swelling of the blocked glands—"the oil bump" and numerous "blackheads."

This effect is the simplest form of dermatitis common to all lubricating insoluble oils. It becomes accentuated when oil-soaked clothes are worn next to the skin and parts of the body are literally wearing a "poultice" of oil. It will be readily understood why, when preventives are discussed, emphasis will be laid on cleanliness, both as regards the person and the clothes.

When these oil bumps and blackheads become infected, they form boils. This is the skin condition which has given rise to the expression "oil boils." All normal skins carry various classes of bacteria to which the individual has a varying degree of resistance. When this resistance is lowered to any type of germ, or a particularly active organism is encountered, any damage to the skin may allow these germs to enter and result in infection.

It is not to be wondered at that a skin with blocked pores and "blackheads" is a ready prey to infection. Once boils begin, the pus from each boil spreads these germs generously to other areas, and the process is likely to continue for long periods. When this situation is considered it will account for the "oil boils" and explain why the process occurs even though there are no germs in the oil. This does not justify such insanitary practices as spitting tobacco juice, etc., in the oil pan. Certainly the cleaner the oil is, the better, and the methods of cleaning it will be discussed later. We must realize however, that a skin with blocked pores and "blackheads" is all set to be infected, and this infection may take place even when the oils used are the cleanest possible. There are enough germs on the normal skin to cause this process without its occurrence being considered any reflection on the oil. Consideration of this process does re-emphasize the necessity of personal cleanliness and cleanliness of personal clothing. A clean skin is less likely to become a "bumpy" skin and the clean "bumpy" skin is less likely to develop boils. The "bumps" may be identified for practical purposes by the following description:

Pimples, isolated, reddened and raised, and many no larger than a pin head. The size may vary greatly, some becoming as large as a walnut. They occur on the exposed surfaces (particularly the hairy portions) which usually are the arms, the neck the thighs, and knees, the latter being exposed because of the oil which is splashed or wiped on the coveralls. The number on the arms may be few. It is on the lower limbs that they are likely to be most numerous, the entire thighs and knees being frequently covered completely. For this reason the prevalence of "bumps" can be more accurately estimated in the shower or locker room than by passing down the line of machines. Not only are the bumps on the thighs more numerous, they are also likely to be individually smaller than those on the arms. This may be because the friction of the trousers or coveralls "sandpapers" the tops before great enlargement takes place.

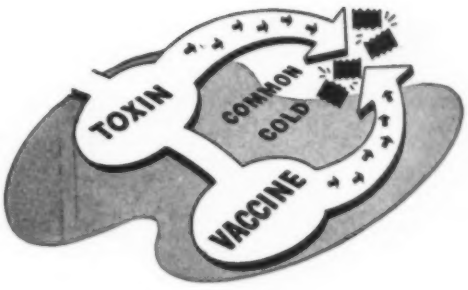
Care of the Oil

THE cutting oil in use accumulates "chips," the small metal particles being cut or ground off in the machining process. These chips act as small sharp foreign bodies in the oil. When it is realized that a 60-pound block may be machined down to 15 pounds of finished material, the extent to which these chips can accumulate may be visualized.

Most machine tool plants reclaim their oil. The oil is first removed from the chips by centrifugal machines, or by filtering. The frequency of this process may vary in different plants or with different conditions. Certainly these chips should not be allowed to accumulate in the oil any more than is necessary, because of their abrasive action on the skin. This also emphasizes the need for frequent change of towels or rags with which employees wipe off their arms. Unless they are changed often they have, on account of the accumulation of chips in their weave, a sandpaper action. Add to this the germ accumulation from the individual with boils and the spreading of germs with every wipe, and the emphasis on a supply of clean towels frequently is justified. These towels are often rags which have been reclaimed. In the reclaiming many may have been exposed to strong alkalies. Occasionally it has been found necessary to give these rags a preliminary laundering to remove the residue of alkali.

There is another characteristic of cutting oil, namely its tendency to absorb fats from the skin and cause it to become excessively dry. Many cutting oils are made with the addition of animal or vegetable fats. The lower the proportion of the fats in the oil, the greater is this drying effect. Oils of very light body tend to remove more fat than heavier oils. Consequently the lower the viscosity the greater may be the de-fatting of the skin. The lumps and boils are also affected by viscosity, as the heavier the oil the more likely there will be "plugging" of pores.

Again, the individuals vary. The dark swarthy type with a naturally oily skin is not likely to suffer from the de-fatting effect but is more likely to develop boils, particularly if his body is very hairy. The blonde with the



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naturally dry skin is much more likely to show the effects of this de-fatting process. An application to the skin of olive oil, castor oil or lanolin is helpful for this condition. This will be referred to later.

To many cutting oils, sulphur has been added because of its anti-weld effect. In some metals under high temperature conditions there might otherwise be a desire on the part of chips to fuse to the cutting tool. In a few oils this sulphur content may be sufficient to cause a "skin burn." Not many oils will have a very high sulphur content and not many skins will be sensitive enough to burn. It is mentioned, however, to call attention to the fact that there may be occasional cases believed to be "cutting oil dermatitis" which are actually due to sulphur. These cases, if they are identified, may be easily cured by a transfer to a machine using a low sulphur content oil. A high chlorine content will cause "bumps" on the face and neck. They are waxy-like pimples which might be described as large "whiteheads." Once formed, they require prolonged and patient treatment. This condition has been described as "chlor-acne."

It is important to discuss the addition of carbolic acid, or its derivatives, to cutting oils. The oil in the refining process has all been subjected to extreme heat and so is sterile when supplied. If, for any purpose, carbolic acid is added at the refinery (a practice which is being abandoned rapidly) the purchased product will likely contain no higher than 0.5% of the material in its formula. Even in this strength, however, the carbolic may irritate some skins, and employees showing carbolic burns should be switched to another machine.

What is of much greater importance is the practice of adding carbolic acid or its relatives to the cutting oil at the user's plant.

It must be remembered that any carbolic compound or other antiseptic in strong enough solution to kill germs is also likely to be strong enough to damage skin. Employers, with the best of motives, are likely to resort to the addition of carbolic or other antiseptics to the oil they are using to keep them sterile. This has resulted, in cases, in increased skin troubles due to these added chemicals. With our present understanding we would not recommend the addition of anything to oils unless it is added for the effect of machine operations. Before adding any disinfectant to help the employee's skin, be certain the addition will not cause more harm than help. Above all does this warning seem applicable to carbolic compounds. As a matter of fact, repeated tests have shown that insoluble oils do not support the growth of germ life.

In some plants, pine oil is added to cutting oils. The justification for its addition lies in its ability to mask the rancid fat or sulphur odors which are given off by some oils, high in fats or sulphur content. Pine oil has antiseptic properties, but in the strength usually used (½ pint to 55 gallons) it is not sufficiently irritant to the skin to justify any particular objections to its use.

We have spoken of the centrifuging filtering of oil to remove chips. This may be carried out under sufficient heat to constitute a pasteurization process. We pointed out earlier that we did not have to assume that skin infections came from bacteria in the oil, and in all probability few do. Considering, however, the amount of saliva, pus, etc., which would accumulate in oil which is in constant use, we cannot fail to endorse the practice of pasteurization where it is practical.

The Sensitive Skin

THERE is one other action exerted by cutting oils which should be understood. It is an entirely different picture from the plug, lump and boil process, and should not be confused with it. Almost any skin exposed to sufficient oil and dirt will go through some of the lump and "blackhead" process. This other effect, now to be discussed, will affect only a few people under any conditions.

There are those people whose skins are "sensitive" to the contents of cutting oils and to whom exposure results in a dermatitis. It is probably not a sensitivity to the presence of mineral oil but to some inhibitor which has been added. The process is not "lumpy" and not pustular.

It is a weeping like "eczema," reddened areas with scaly, crusted patches, or a reddened appearance. It usually occurs on the forearms, but an extremely sensitive person might break out as well in parts not exposed to oil. Blondes are more likely to suffer than brunettes.

Persons may be divided into one of three groups, according to their reaction:

1. The majority, the vast overwhelming majority, show no reaction.

2. A very small number who develop the dermatitis, usually within a week or two of first going to work in oils, but in whom it never becomes severe enough to cause disability or loss of time. Usually in the course of weeks to months they become "hardened" or "toughened" and get perfectly well without any recurrence.

3. Those few in whom the action is so severe that they have to lose time and be removed from the work before they can be cured. If it recurs on returning to work it may as well be accepted that they were not intended to work in cutting oil.

An appropriate cream may serve as a protection. These creams will be discussed later.

Soluble Oil Emulsions

SOLUBLE oils are purchased as "compounds." These compounds are never used as such. The barrelled product is diluted from three to 100 times with water, forming the soluble oil emulsion. Seldom will it be as strong as one to three. One in 10 to one in 100 is the usual range. The addition of water causes the oil to form an emulsion, milky in appearance, and soluble in water. The oily characteristic is lost, and we are rarely confronted with the problem of bumps and boils. With cleanliness there will be few serious skin troubles develop in handlers of soluble oils. There will be cases of excessively dry skin, small water blisters on the fingers, or a rare severe skin reaction in an extremely sensitive individual, but the proportion of problem cases will be small.

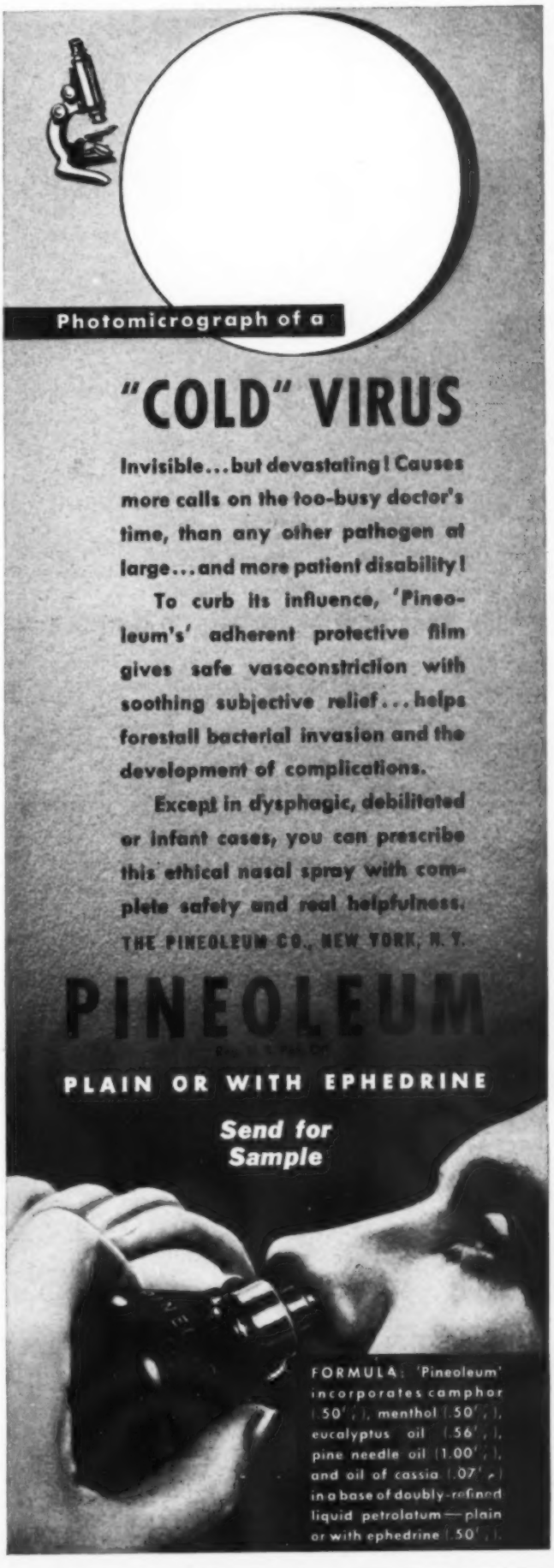
A machine using only soluble emulsions may be a good place to assign an individual who has difficulty from cutting oils. Large plants that have many machines operating with nothing but soluble oils may, and do, take advantage of this situation. In the plants where machines may alternately be using soluble emulsions and cutting oils it may be impractical to isolate these individuals to an exposure of the soluble type only.

Soluble oils emulsions, being so diluted, are not as expensive as the cutting oils and as a result are not subject to pasteurization in many except the largest of plants. Theoretically they are discarded when they have outlived their usefulness. Actually only the sludge is discarded and new compound is added to the old mixture to maintain the consistency. As a result the oil may become loaded with bacteria and yet dermatitis remains infrequent. The larger chips settle out of the emulsion rapidly into the bottom of the tank on the machine. These are hoed or forked out of the tank periodically.

The objections to adding strong antiseptics are applicable in the case of soluble oils, and are again emphasized. The dilution is usually great enough that the carbolic already present does not create a problem, and the sulphur content is usually not high, even in the initial compound.

Recently there has been a large increase in the use of alkaline coolants which are essentially mixtures of soap, water and alkali. These are likely to be more de-fatting than soluble oils, and to produce a higher incidence of dermatitis.

Before leaving the subject of oils it should be emphasized that we have discussed only the common types of dermatitis and the causes. It must not be assumed that any skin condition encountered in operators of machines is necessarily a cutting oil dermatitis. Individual cases or even outbreaks may occur which will require some Sherlock Holmes work on the part of those concerned before the cause and solution will be found. It is well to remember that the materials being fed to the machines may have been coated with an anti-rust solution which contains an irritant. This discussion is not intended to do more than supply a thumbnail sketch of the more common conditions. Its users are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Protective Creams

IN REGARD to the protective creams, the principles of their use are simple. The cream is applied to the *clean* skin and, by forming a protective coating, keeps the oil from coming in contact with the skin. Clean is underlined because any cream applied over an unclean skin defeats its purpose. The oil or dirt already on the skin is sealed in to exactly the same extent to which the fresh oil is sealed out. The cream, furthermore, temporarily fills the skin pores with its own substance, which is harmless, and so prevents the plugging by the oil.

The proper type of cream or lotion to select for use presents difficulty. A standard mixture is 70 parts of lanolin and 30 parts of castor oil plus two parts of Duponal or other wetting agent. The wetting agent promotes mixture with water and makes the washing of grease from the arms much easier. Before experimenting with the products of various manufacturers, there are a few principles which should be kept in mind.

A protective cream should not be dissolved by the material against which its protective power is aimed. All oil soluble cream, for instance, will be dissolved from the skin immediately by cutting oil, and a water soluble cream would be no protection against emulsions. For practical purposes, both lanolin and castor oil are insoluble in either cutting oils or soluble oil emulsions. The application of this principle will prevent some expensive experimentation.

Various manufacturers have numerous products on the market and their advice as to the cream recommended for any purpose may be sought. Their claims, unfortunately, may not always prove justified, but at least the percentage of successes should be higher than that achieved by blindly using any cream labeled "protective." All creams and lotions will have their limitations, both as to purpose and protective power. This point is emphasized because each problem may call for experimentations; patience, as well as optimism, will be of value during the experimental period.

Protective Clothing

ANOTHER measure which will have a useful place is "protective clothing." Recently synthetic resin materials have been developed which resist oils, solvents, and the like. Gloves, sleeves, aprons, leggings, etc., are being manufactured from them. A selection of a suitable garment for selected workers may produce striking results in individual workers. Where men object to wearing an apron as such, it may be split and tied around each thigh. If it is hung over the neck by a string or strap this part must be laundered daily and hung up to dry overnight. Otherwise this strap becomes extremely soiled through constant contact with the skin. The same is true of wrist bands of sleeves which are usually made to fit snugly at the wrist and loosely on the upper arm. It also must be remembered that the purpose of the protective clothing is defeated if oil is allowed to gain access underneath it. This elemental fact is occasionally lost sight of by its wearers. The neck strap on the apron may be eliminated by some suitable type of fastener which will clasp the top to the shirt. Again this has to be the subject of experimentation regarding the material, the garment and the manufacturer, but the possibilities justify the investment of expense and effort.

The greatest protection of all, however, is still personal cleanliness. No amount of experimentation with creams, protective clothing or other measures will justify a neglect of cleanliness.

It is difficult to change the lifetime habits of employees. It is embarrassing to call attention to their unclean habits, and yet, if they are to be protected, cleanliness is essential. A hard-boiled approach on an individual basis is more likely to result in resentment than accomplishment. It seems practical to emphasize impersonally at the time of employment, or placement at the machine, that the employee is paid for two duties: (1) to operate the machine according to instructions, and (2) to wash thoroughly

according to instructions before and after the operation.

To insist on this cleanliness, however, also implies that the employees are supplied with adequate equipment with which to wash, and time in which to do so. Unless the employer has supplied wash basins, hot water, suitable skin cleanser, towels, etc., he cannot possibly expect to obtain results from any educational program in regard to cleanliness. The employer may not feel that he is in a position to allow time off for washing, but the firms which have done so have proved their superior ability to obtain satisfactory results.

Cleanliness involves the use of some skin cleanser, the commonest, of course, being soap. There are so many soaps in the market that no one individual could give each a fair trial. There are some fundamentals, however, which, if borne in mind, will simplify the selection of a suitable soap.

To begin with, a soap may or may not have a "scrubber" added. A scrubber is any substance added to it to increase its effectiveness by supplying an element of friction. Any soap without a scrubber, such as ordinary toilet or liquid soap, may lather well and be quite satisfactory for ordinary household use. The worker who has been exposed to grime and grease all day, however, may find that such soaps are too slow or unsatisfactory for his purpose, so he turns to a soap with a scrubber. A simple scrubber is a cereal such as cornmeal, oatmeal or beet pulp. Others are silicas and pumice. The harsher or coarser scrubbers are most effective in cleaning. Unfortunately, however, the more also may be the abrasive action on the skin. Since we are trying to protect skins which are already subject to assault it will be seen that soaps with a strong abrasive action are to be used with caution.

There are powdered soaps which have no scrubber added but whose own crystals act as a scrubber before they are dissolved.

A good scrubber is a soft or medium bristled hand brush, but again the condition of the individual skin must be considered.

It will be realized that the selection of an ideal soap is extremely difficult. Those ingredients or added measures which increase its effectiveness as a cleanser may also increase the potential danger to the skin. Consequently, effectiveness may have to be sacrificed for safety. In doubt, safety for the skin should have precedence over rapidity of cleansing. Frequency of washing will allow the use of milder agents, and this point should be emphasized in any educational campaign.

Strong alkalies or chemicals or disinfectants added to soap may be of such a nature as to cause irritation, and if their presence is suspected an inquiry to the supplier is in order.

It may be remarked here, that formulas are not usually on the labels of many materials used, such as soap, cutting oils, etc. Practically all manufacturers, however, are perfectly willing to answer any inquires and assist in the selection of a satisfactory substitute if for any reason the one in use does prove to be unsuitable. This suggestion may save needless floundering and experimentation with materials.

Soap Substitutes

CORNMEAL was described as a good "scrubber." Lanolin has been mentioned as useful in replacing the fat in the de-fatted dried-out skin. For this reason mixtures of cornmeal and soap with or without lanolin have been much used in recent years as a skin cleanser. Reports on its use seem to be unanimous in endorsing its effectiveness. They are not so clear-cut, however, on the question as to whether its extensive use will or will not cause drains to block. It has been suggested that where practical, a daily insertion of a steam hose into the drain will prevent any tendency to block, or that a daily flushing of the drain with extremely hot water will minimize it.

Recently the use of sulphorated castor oil has come into prominence as a skin cleanser. It consists of castor oil with sufficient sulphur to make it soluble in water, and a "wetting agent" added. The formula as published by Dr. Louis Schwartz, is 98% sulphorated castor oil with the addition of 2% Duponal. Indications are that it is most satisfactory for removing grease, oil and dirt. In spite of the fact that

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it does not lather, it is effective enough to have replaced the strong harmful solvents to which many machinists have habitually resorted in their efforts to remove grease rapidly. In addition, it, like the lanolin mentioned above, adds fat to the dried skin. In this respect, persons who are forced to work in solvents or oils who have excessively dry de-fatted skin will find it of advantage to apply some cream containing lanolin or olive or sweet oil to their hands before going to bed. The skin being de-fatted, will actually "drink" the oil from the skin and tend to regain its normal softness.

In conclusion, it must be remembered that this discussion aims to tell the story of cutting oil dermatitis in so far as it is known at the time of writing. The summary of recommendations to follow is not the final word because the final word has not yet been written. These are not the measures which will eliminate cutting oil dermatitis. These are the measures, however, which, if carefully followed until better measures are discovered, will minimize it sufficiently so that it will not cause much disability or loss of production.

Summary of Preventive Measures

ESSENTIAL IN ALL CASES.

1. Cleanliness of the person. Thorough washing before work, before the application of creams, and at the end of any operating period, and never at longer intervals than four hours, oftener if possible, such as during a recess period. Must be thorough and with a cleanser which in itself will not react badly on the skin.
2. Cleanliness of clothes. Normal laundry periods are not frequent enough for those whose clothes are exposed to oil or whose skin is infected.
3. Frequent change of towels or rags used on the job.
4. Time allowed if possible for washing.
5. Adequate equipment installed for proper washing.

ADDITIONAL MEASURES NOT NECESSARY IN ALL CASES AND WHICH DO NOT RELIEVE THE NECESSITY FOR CLEANLINESS IN ANY CASE.

1. Synthetic protective clothing of oil resisting materials, aprons for thighs, sleeves for forearms, etc.
2. The use of sulphonated castor oil for cleansing.
3. Protective creams.

ADDITIONAL MEASURES WHICH MAY BE APPLICABLE IN A FEW CASES.

1. An oil application, after work or before bedtime for those with excessively dry skin.
2. Removal from cutting oil to machine using only soluble oils.

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3. SCHWARTZ, LOUIS: Chloracne from Cutting Oils. *Public Health Reports*, 57:1747-1752, November 20, 1942.
4. SCHWARTZ, LOUIS: Industrial Dermatitis in our War Industries. *Industrial Medicine*, October, 1942.

INDUSTRIAL HYGIENE, "Current News of Official Industrial Hygiene Activities," issued monthly by the Division of Industrial Hygiene, National Institute of Health, starts off its January first page with this notice:

"Will anyone encountering new cases of epidemic keratoconjunctivitis please notify the Division of Industrial Hygiene, National Institute of Health, Bethesda, Maryland, immediately by wire collect."

LONG ISLAND COLLEGE of Medicine has gathered into one binder all the texts and outlines of the lectures given at its Post-Graduate Course in Industrial Medicine last November, and has been making the volume thus compiled available at $5.00. A substantial number of the books have been sold throughout the country, but there are about a dozen remaining for sale. This material is well worth while, as evidenced by the texts published in these pages. Address the college at 350 Henry Street, Brooklyn, New York.

INDUSTRIAL HEALTH and DISEASE

Women at Work

—A Doctor's Viewpoint—

CHARLES-FRANCIS LONG, M.D.,
Medical Director, Bayuk Cigars Inc., Philadelphia

IT IS the responsibility of the physician to do the kind of physical examination that will best inform him of the applicant's health status. The individual details of just what constitutes a satisfactory physical examination have been set forth in many medical professional journals, and need not be described here. Naturally, with women, the question of undressing will embarrass all concerned unless it is settled promptly once and for all. It is the duty of the physician as part of management to impress on the female applicant that an honest physical examination requires undressing. He should take the attitude that it is part of the pre-employment technique—and no further comment made. Preparing the applicant for examination should be in the hands of the attending nurse.

Having passed the physical examination for a certain job and having been placed in that job, attention must be paid to the matter of accident prevention. I take it for granted that nothing need be written concerning the proper guarding of machines which women must operate. A machine adequately guarded so that it is safe for men is just as safe for women. But management must see to it that women's apparel at the machine is as safe as that of most working men.

A very important consideration in factory work is that the female of the human species delights in adorning herself—as the testimony of eyes and pocketbooks has undoubtedly brought home to readers. Be that as it may, management cannot, for obvious reasons, allow long-sleeved blouses with frills down the front. Also, the hair must be either bobbed or worn close to the head for the very good reason that a machine is a much more efficient scalping device than an Indian. The whole problem is best solved by specifying a short-sleeved covering uniform with skirt falling just to or below the knees, and a cap to match. In our factory we are so interested in seeing that hair, hairpins, and bobby pins stay on the head that we sell our employees hairnets at cost price.

Next, we turn to the curious devices that some women walk in, which no orthopedist or anyone else in his right mind would describe as working shoes for factory use. Our safety campaign at Bayuk Cigars Inc. really got a start when one of our employees coming downstairs lost both the heels from her shoes and sat down so violently that her coccyx was broken. Those shoes were paraded in a truck through the plant, together with a pair of proper work shoes, and from that time to this day low-heeled oxfords with straps or laces over the instep are the only working shoes for women allowed in the plant—and we haven't had a shoe accident since that rule was made.

Thinking further of the decorative desires of women as related to safety, we must consider jewelry. If anyone has seen a lacerated finger further mangled by the cutting edge of the ring worn at the time of the accident, there will be no difficulty in understanding what I have in mind. We do not allow jewelry of any kind to be worn at work, and that includes wrist watches and *wedding rings*. It took courage to go "all out" on this rule, but we hewed to the line. We prefer to prevent accidents rather than salvage their effects. A woman's hand minus the ring finger is a most unpleasant sight.

Another important safety factor that should be given careful consideration is obesity, a disease more common to women than to men. In general, women tend to be 5 feet 6 inches or less in height, and we have established an arbitrary rule that 200 pounds is our limit. This is based on the obvious fact that a large body is a more effective cork in a passageway than a thin one. We once had a near-panic when an air-conditioning duct fell. The stout girls who moved more slowly were worse bruised and hurt than the girls on whom the duct fell. The heavy ones got trampled by those who were more active.

From an Article in Metropolitan Life's *Executive Service Bulletin*, September, 1942.

Accident Proneness

IN addition to the causes of accidents, there remains a factor which has been receiving increasing recognition. It is apparent from everyday experience and the examination of accident records that, under the same conditions of exposure and environment, some people have more accidents than others. Although this difference in accident rates among individuals might be attributed to different causes—such as chance or the effect of a first accident on the subject's liability to others—analysis of accident data has shown the special importance of the factor known as "accident proneness." In the first statistical studies by the Board of the accident records of industrial workers, to determine reasons for the unequal distribution of accidents among persons exposed to equal risks, three hypotheses were examined: First, that there is a chance distribution of accidents; second, that having an accident may affect the chance of having another either favorably or

From "Accident Proneness in Factories in Great Britain," *Monthly Labor Review*, December, 1942.

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by

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Western Reserve University School of Medicine
Cleveland, Ohio

Foreword by Foster Kennedy

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unfavorably, by making the person more careful or more nervous; or third, that individuals are initially unequal in their liability to sustain accidents under equal conditions of risk. Further studies, covering a large number of industrial and transport groups, have repeatedly shown that the majority of the accidents occurred among relatively few individuals.

In general the accidents analyzed have been minor ones, such as cuts and bruises, since serious accidents are not sufficiently frequent in any single department during an observational period of reasonable length to yield adequate data for testing the hypothesis of unequal liability. An analysis of the accident records of about 14,000 workers in several different trades, however, showed that those persons having an unusual number of minor accidents also had an unusual number of major accidents. This shows that any conclusions arrived at as to minor accidents will apply also to major accidents, and that efforts to prevent persons specially susceptible to accidents from incurring danger will protect them from both minor and major accidents. In comparing sickness and accident records it was found that those individuals who often report sick have, on the whole, a higher accident rate than others. Young and inexperienced workers were found to be more liable to accidents than the mature and experienced, but when the accidents of groups of equal age and experience were analyzed, it was found that the majority of the accidents were limited to relatively few of the subjects.

Evidence from all the groups studied showed that accident proneness is a relatively stable factor, appearing in all periods of exposure and in different kinds of accidents. Although there are other factors in the accident rate, there is a close enough relation between the number of accidents sustained by an individual in each of two periods to prove that some set of factors is constantly tending to make certain people more likely to have accidents than others.

For nearly 20 years investigators have been experimenting to find some test, or group of tests, which would serve as a means of determining those persons specially liable to accidents. Experience shows that in a given department the probable number of accident-prone persons ranges from about 10 to 25% of the group. One test called "aesthetokinetic," involving rapid and accurate hand and eye coordination, was used first with 600 subjects. Among these persons, those who were below the average in the tests had a subsequent accident rate 48% higher than those who were above the average, and the accident rate of the worst 25% in the tests was 51% greater than that of the remaining 75%. A later series of tests of 1,800 persons, including the coordination and other tests which were not so closely associated with accident proneness, showed that the accident rate of the worst in the "aesthetokinetic" tests was approximately twice as great as those of the best. The groups studied in the research included transport workers, air pilots, railway men, and men employed in engineering occupations. The "aesthetokinetic" tests measure the capacity to respond accurately to various sensory stimuli within a controlled time interval. It is possible for persons who have had little previous training in psychology to give these tests, provided certain precautions are taken to insure proper control. If this is done, the report states, there is nothing to prevent the practical use of these tests in selecting for dangerous occupations, persons with a specially low degree of accident proneness.

The tests are valid for use among skilled workers only, as it has not been possible to show a relation between these or any other tests and the accident rate in unskilled occupations. These tests when used in the skilled occupations show not only a lower accident rate but also a higher proficiency rate among those who do well in the test. Since the "aesthetokinetic" tests measure certain factors included both in proficiency and accident proneness in skilled occupations, it is considered possible that accident proneness in an occupation is inversely related to proficiency in that occupation, although the direct evidence on this question is still conflicting. Quantity production is still the main basis in

certain occupations for judging proficiency. If in the process of manufacture there is some particular danger point, this will be encountered more often by the more productive workers than by the others, so that their exposure to the particular danger point is more frequent. This increases the accident liability of the more productive workers, and as a result, though they may be less accident prone, this advantage may be partly lost and they may have an undue number of accidents. The fact that it has not been possible by means of the tests to reach any definite conclusions regarding general industrial proficiency and accident rate may be due to errors of this kind. However, since the data provided by the tests involved both accident proneness and industrial proficiency in the skilled occupations requiring manipulative ability, it appears evident that if the tests were practically applied they would tend to select persons having a low accident rate associated with a high rate of proficiency.

The reason why no relation has been found in these tests to either accident proneness or proficiency in unskilled occupations, it was considered, might be that unskilled occupations are dependent less on accurate and rapid coordination and more on a willingness to perform a repetitive process without finding it irksome.

The advantage gained by the use of psychological tests for the prediction of accident proneness instead of basing it on previous accident records is that this method makes it possible to place the accident-prone workers in the less-dangerous occupations; if this method were extensively carried out it might well have the effect of lowering the general accident rate.

Rehabilitation

AN AUTOMOBILE manufacturer, who spends hundreds of thousands of dollars annually on plant medical programs, has stated these programs are "all the more important during the present national emergency when the nation is facing a serious drain on its manpower." It adds it is "just as important" for war workers to keep fit as it is for fighting men in the combat services. . . . There is a great deal of work being carried out to rehabilitate employees who have recovered from tuberculosis. Plant doctors take x-rays of such employees every three months in order to keep a regular check on their progress. The concern has also made jobs for cripples, blind persons and sufferers from heart ailments. "Perhaps the most striking examples of employees who have been rehabilitated are those who have developed defects of the heart. . . . One who has recovered from a serious heart ailment may be seriously physically handicapped and he must be employed under conditions that will not aggravate it. . . . We have many heart cases working in suitable occupations throughout the plant. They are under the supervision of the medical department and report for periodic examinations as often as we think necessary. We operate under the belief that it is best for these folks to be kept on suitable gainful occupations, and, while they are so occupied, we cooperate with their family physician, supervising their work activities and their physical conditions."

Another prominent war contractor reported that "in the last two years we have altered the physical standards that an applicant must have to secure employment," thus resulting in employment of a number of persons who previously were excluded from participation in the war effort. A company medical executive reported that they give a good deal of pre-employment advice concerning the correction of hernia and faulty vision. "By a selective system of job placements we put the 'sub-standard' employees in positions where they can do an efficient day's work without endangering themselves or other employees."

A South Carolina manufacturer reported: "We have had an excellent health program in our plant for some time and we require physical examinations before we put applicants to work. We also talk frankly with applicants that we reject and we make recommendations to them as to the

From Industrial Relations Bulletin No. 45, National Association of Manufacturers, New York.

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things they can do. For example, we suggest that they get glasses to correct vision for inspection jobs and many other items which are too numerous to mention. By talking frankly with applicants and getting them to keep in constant touch with their doctor, we are able to get a good many people to work who otherwise would not be able to do so."

A leading aircraft producer on the West Coast, at a recent date, had 13 blind persons—11 men and 2 women—working on the assembly lines where fighter planes and huge bombers are produced, and, by this time, probably has increased that number. "These 13 are pace-setters. Without exception, they have stimulated the sighted people around them into increased production." The blind persons were employed through cooperation of a nearby blind training school. First they were put through a month's placement test, in which they proved that, in certain jobs, they could more than hold their own against sighted workers.

A new England arms plant has a blind man employed as an inspector and a factory official commented his skill is "unbelievable." A New Jersey manufacturer employs blind men and women for the gauging of mica spacers used on condensers for tank and airplane motors, and reports their work is far above the average for normal people performing the same operations.

Another large Eastern plant is employing physically handicapped persons wherever possible. It is among the numerous Pennsylvania plants cooperating with the State Bureau of Rehabilitation, which, with this aid from industry, is able to place more than 800 young handicapped persons a year in war work. The drafting rooms of its Transformer Division was cited as an example of how the company is cooperating. The persons were put to work as draftsmen, and the results were excellent. In fact, the company reported, "one of the young men made the highest grades in aptitude tests in a group of 96 of our drafting apprentices."

A manufacturing chemist rehabilitates employees injured in line of work, and also cooperates with family physicians or outside institutions in health problems affecting workers.

Another firm that cooperates with state rehabilitation agencies is a leading shoe manufacturer in New York, which reported that "we have always felt that, on work where the disability did not interfere with the particular duties assigned a handicapped person, we would just as soon hire a physically handicapped person as one who is not. Our experience with them has been satisfactory."

Highly satisfactory experience with the employment of deaf mutes was reported by a well-known paper company which has one division in which 8% of the 550 employees can neither speak nor hear. "Our experience with these men has been highly satisfactory over a period of years, and, while the training program is more complicated and cumbersome than the program set up for normal individuals, we find these afflicted individuals highly intelligent. As a result, we have been able to up-grade many of them at a fairly rapid rate."

A producer of machinery and tools in New England cooperates with the State Department of Labor in employment of handicapped persons. In its messenger department alone, it has taken on 27 persons with various degrees of physical disability. "These disabilities range from arms amputated at the shoulder, to those with crippled hands and arms, those suffering from shell shock, and those disabled by the ravages of infantile paralysis." The same company also employs 15 deaf mutes, one of whom has been with the company for more than 50 years. "These people are among our most able and respected employees." The concern also has a policy of providing new and suitable work for any employees who may be injured in the shop.

One Eastern company has gone all-out in its effort to get workers to help it fill its war contracts. It has taken on one-legged men, others "so badly crippled that they must sit down for work at all times," men without fingers, men with hernia and men in their 70's. The company even has adopted a policy of hiring men "who may be suffering from the social diseases if they are at such a stage that treatment will cure them, and if the prospective employee will agree to follow such treatment under the supervision of our company doctor."

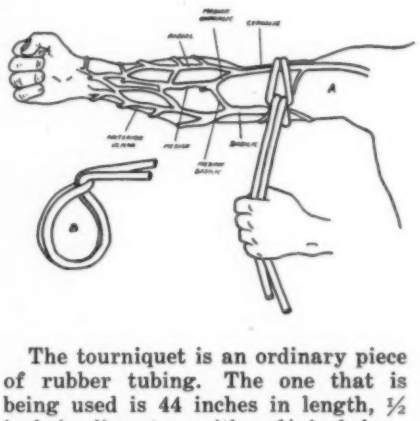
Simplified Tourniquet

—for Venipuncture—

WILLIAM M. HAYES, M.D.,
Hamilton, Ohio

VARIOUS types of tourniquets are in use. Some of them are simple, while others are complicated, and run from the non-expensive to the expensive.

The tourniquet described here has been used in venipuncture on hundreds of punctures, where blood is taken for seriological examinations. In one of the larger industries, this is a part of the medical examination upon being employed. This tourniquet is rapidly applied and time saving where a large number of men are being examined, and it is also instantaneously released.



The tourniquet is an ordinary piece of rubber tubing. The one that is being used is 44 inches in length, ½ inch in diameter, with a ¼ inch bore and very resilient. The tubing is folded upon itself and passed around the upper arm—right or left. The upper, or loose ends, are passed within the loop where the tubing is folded upon itself. The two arms, or upper portions of the tubing are drawn up tightly against the loop and then pulled backward and downward on the loop and held in this position. The arms of the tubing which encircle the upper arm should always be as near side by side (parallel) as possible. This gives a double constricting force and causes the veins in the forearm to stand out in bold relief, due to their distension, making them easy for puncture. The tourniquet is held in place either by an assistant or by the one who is being punctured.

The one assisting, that is, the one holding the tourniquet, when told to release or remove his grasp, after sufficient blood has been drawn into the syringe and before the needle is withdrawn from the vein, the tourniquet releases itself spontaneously; it snaps off due to its resiliency.

When you do not have an assistant, the one making the puncture applies the tourniquet and the one being punctured holds the tourniquet in place. It has previously been explained what you want done. In the event that the one being punctured freezes to the tourniquet after being told to release it, you can knock his grasp from the tourniquet with your free hand, or if syncope takes place during the puncture the grasp will relax and here again the tourniquet snaps off automatically.

It is to be understood that the field where the puncture is made has been prepared and the one making the puncture has carried out the proper technique.

From *Southwestern Medicine*, December, 1942.

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COMMENT and OPINION

—Continued from page 43.

preserve a sense of humor. A hard-bitten mill foreman, wise in the ways of men, used to say, "I can tell if a man was drinking last night by the way he wears his hat". . . . Several years ago an Ohio glass company started checking on sick absences and discovered that colds were far more numerous in one section of a certain plant than elsewhere. Investigation disclosed that, for no particular reason, a large door in that section was "eternally ajar." The workers were always in a draft and always catching cold. By the simple expedient of closing the door the absenteeism rate was cut sharply. This case may oversimplify the problem, but it shows how, once we know the causes, we can often find the "cures." But we can't find them without looking, and certainly if we don't know what we are looking for.

—From "Audit Your Absenteeism," by JOHN F. MCMAHON, Managing Director, Industrial Hygiene Foundation, in *Personnel Journal*, November, 1942.

SPEAKING on "Why do employees stay away from work and what can we do about it," DR. CLARENCE D. SELBY, medical consultant, General Motors, Detroit, stated: "In the effort to maintain the health and persons of the employees at the highest possible production level, the pre-employment examination—to the exclusion of the unfit—has been changed over to the pre-placement examination—for selective employment of substandard as well as whole and healthy people. The time-tried functions of industrial hygiene control, care of occupational injuries and diseases, temporary treatment of minor ailments and emergency sicknesses, medical consultations, health education, and record keeping, continue to be useful and important as heretofore. Methods for relieving workers of their worries, maintaining their proper nutritional status, and preventing fatigue are being developed, and studies of sickness absenteeism are coming into practice. Realizing that a great many doctors, not directly connected with the industries, treat sick workers and consequently are influential in determining absenteeism from sickness, a more understanding relationship between the professional and industrial medicine is being cultivated. In measuring the effectiveness of the program, studies of sickness absenteeism take priority. Absenteeism in General Motor's war plants is about 50% greater than during peace-time automotive days, but the daily number of workers absent has been leveling off since September. The absentees who are off less than a week now amount to about 3%, compared with 1.5% in peacetime. Absences from sicknesses of more than a week are now about 1%, representing little change from normal. Most of the short absences occur among new workers. They are receiving a great deal of attention from management and labor unions as well as the medical profession, but as an index of the effectiveness of the industrial health program they have little value."

—From DR. SELBY'S Report at the Fifth Annual Congress on Industrial Health, abstracted in *Steel*, January 18.

Heat Collapse

HEAT cramps occur in the early period of a hot spell, do not produce unconsciousness and follow extreme activity with profuse sweating and increased ingestion of fluids. The body temperature is normal. The most prominent symptom is a spasm of groups of muscles, subsiding for a period to recur with varying degree and frequency. The muscles of the extremities are the most frequently involved. Subjects indicate the pain as indescribably intense. In the severe case, the relief observed in replacement of salt through intravenous injection is striking. The milder cases require only oral administration. Patients are usually relieved after 12 to 24 hours. Heat exhaustion presents a picture of shock and weakness. The individual is pale; the skin cold. The pulse is usually weak and rapid; the temperature is below normal. It is more frequent in the older age group and

those handicapped by systemic disease. Patients with heat stroke manifest a high temperature, 106 and above, unconsciousness and a dry skin. There is absence of sweating and its cessation occurs before the onset of an attack. Its occurrence is more frequent after the second and third day of a hot spell. No loss of chlorides is noted, its basis being a disturbance of the heat regulatory center. This condition is the most serious of the three and demands prompt measures toward the reduction of body temperature. In general, the measures conducive to a good industrial health program include the prevention of heat collapse in the worker. The periodic physical examination, including that after sick absenteeism, and prompt report of illness on the job, need greater attention during this season. Dietary indiscretion and alcoholism are frequently observed as factors in the incidence of heat exhaustion and heat stroke. Careful attention should be given by the employee to the meal carried to work in the lunch kit. Too frequently it contains food remnants inadequately stored or refrigerated. Education in the selection and preparation of this important meal has broad possibilities in the hygienic program. Adequate rest, often obtained with difficulty, during protracted periods of hot weather, should receive consideration. Sufficient experience in the use of salt in the prophylaxis against heat cramps in recent years has proved its value. The use of the tablet is the most practical method of administration under most circumstances. The coated tablet appears to meet with more favor. In the treatment of heat exhaustion, facilities should be available where adequate examination and observation may be carried out.

—From "Prevention and Treatment of Heat Collapse among Industrial Workers," by F. J. ELIAS, M.D., in *Minnesota Med.*, December, 1942.

The Pattern of Fear

IS THERE a pathological pattern to fear? Dr. Emilio Mira, Spanish psychiatrist chosen as this year's Salmon lecturer, has made such an analysis in the course of his speeches. Fear, he states, can be charted as it progresses from one stage to another. His observations are the result of a study of fear in soldiers at the fighting fronts in the Spanish Civil War. The onset of fear is gradual, he asserts. First comes a state of prudence, with the individual quiet and unpretentious. Then comes a state of caution during which the individual tends to become more meticulous, more accurate and slower in everything he does. Doubts are beginning to appear, and he is enveloped in a cloud of pessimism, although externally he appears reserved and in full possession of himself. Then comes the state of warning, with nervous gestures, followed by overt expressions of alarm and agitation. Movements are jerky and there is a tremor of the extremities. The current of thought is slowed and there are feelings of helplessness. Up to this point the fear-ridden person, as observed by Dr. Mira, appears to be fairly well controlled. Upon going into the next stage of fear, that of anguish and anxiety, there begins to be a disintegration of the personality, palpitation of the heart, muscular spasms, shortness of breath, stereotyped gestures and loss of control. At this point fear becomes so strong that real fright or panic ensues and behavior becomes automatic. Reason is supplanted by purely involuntary behavior. The last stage of terror sees the victim exhausted and limp. He is figuratively, and sometimes literally, "dead with fear." "The best antidote for fear," the doctor concludes, "is to have something purposeful to do. Men are not afraid of real dangers, but they suffer from the 'neurosis of expectation,' unknown situations for which they are unable to formulate means and methods to combat these hidden dangers. Belief in one's objective, the ideals of one's country, is the great antidote of fear."

—*Trained Nurse & Hospital Review*, December.

Candy

VOICE NO. 1, quoting J. C. BOWER, Westinghouse Electric & Manufacturing Company's safety supervisor: "The food wagons which supply our workers with candy and other energy-producing foods between meals have helped materially in reducing our accident rate approximately 30% in spite of 21% increase in man-hours of work." VOICE NO. 2, quoting L. S. LORD, Caterpillar Tractor's director of employee activities: "Our approximately 16,000 employees are benefitted a great deal by candy being made available throughout the plant. Candy plays an important part in lessening fatigue and increasing morale of our employees."

—From a broadcast presented by the Council on Candy as Food in the War Effort, December 9, 1942.

The Physician

THE problems of industrial hygiene may be attacked from two angles: (1) the hygiene of the individual, and (2) the hygiene of the environment in which he works and lives. The first problem is a proper function of the medical sciences, while the working environment has to do largely with engineering practices. It is the province of the medical profession to diagnose diseases and primarily to recognize the existence of such diseases as may be due to the working environment. Based on the conclusions of the physician, the engineer learns what unhealthful conditions should be investigated and what control measures are to be initiated. It is essential, therefore, that the various professions understand clearly the functions of each and approach the solution of the problems of industrial hygiene as a joint effort and cooperate with one another to the fullest extent. The medical problem may best be approached by grouping physicians in industry into full-time industrial physicians and part-time and on-call physicians. Approximately 85% of workers are employed in small plants in which there are no organized medical services. Services to these industries are supplied by private practitioners including specialists in various fields, some of whom have made important contributions to industrial medicine. The medical departments of large industrial plants serve as models of efficiency and have demonstrated their work. The problem confronted by these departments in large industries in the present emergency is largely one of expansion of existing facilities. The fact that medical service to 85% of our workers is predominantly in the hands of private physicians presents an important problem of coordination of effort. In large industries the relatively few full-time men who are specialists in industrial medicine have engaged chiefly in measures for the prevention of occupational disease and the promotion of health. Opportunities of a like nature and probably on a larger scale exist in small manufacturing establishments and are available to physicians who render services to these plants. These practitioners have, in the past, limited their industrial activities largely to the treatment of occupational injuries and diseases and have failed to a considerable degree to see the opportunities afforded by industrial hygiene.

—STANLEY J. SEEGER, M.D., in *Minnesota Medicine*, December, 1942.

The Medical Department

THE staffs responsible for the health services of a company range from a regular part-time nurse with a doctor on call to a large staff of doctors, nurses, technicians, and trained assistants headed by a full-time physician or surgeon. The size of the medical department varies not only with the number of employees, nature of the industry, and location of the plant, but also with management's interest in health and safety. Medical directors of large companies frequently feel that it is profitable in terms of man-hours saved to have specialists as staff members on a regular part-time basis. In smaller companies, the plant physicians call in specialists in consultation on cases of occupational injuries or disease, and give employees advice on securing needed medical care in case of non-industrial disease. Industrial physicians, special medical committees, and public health officers have emphasized the value of a regular part-time physician in contrast to the frequent inadequacy of

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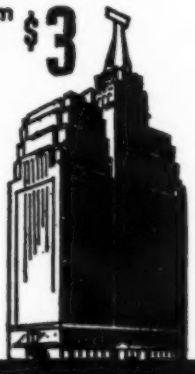

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[1] Wolferman, S. J., and Adams, W. F., Industrial Medicine pg. 318-319, July 1942.

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medical supervision under an on-call arrangement. The most satisfactory organization reported by plants too small to employ a doctor on a regular part-time basis is the health department headed by a full-time graduate nurse. Some companies which considered even the employment of a full-time nurse unnecessary have found a cooperative arrangement with near-by plants for regular part-time services of a nurse and a doctor both beneficial and profitable. The difficult problems resulting from a shortage of industrial physicians at a time of rapid plant expansion are being met to some extent by the employment of women physicians, and by the use of nurses, trained assistants, and clerical workers to relieve the physician of minor treatments and routine clerical work. For smaller companies whose expansion makes improved medical service essential, the solution may be the part-time employment of a neighborhood physician interested in industrial medicine and the full-time employment of a nurse with public health training. Industrial physicians emphasize the need of the doctor's judgment in determining space and equipment for a plant dispensary. They suggest that, if management must plan the space before the physician or nurse is employed, medical directors of other companies be consulted. They feel, however, that the person chosen to head the dispensary should select the equipment.

—From "The Medical Department in War Industries," No. XIV, Industrial Relations Digests, Department of Economics and Social Institutions, Princeton University.

Plant Clinics

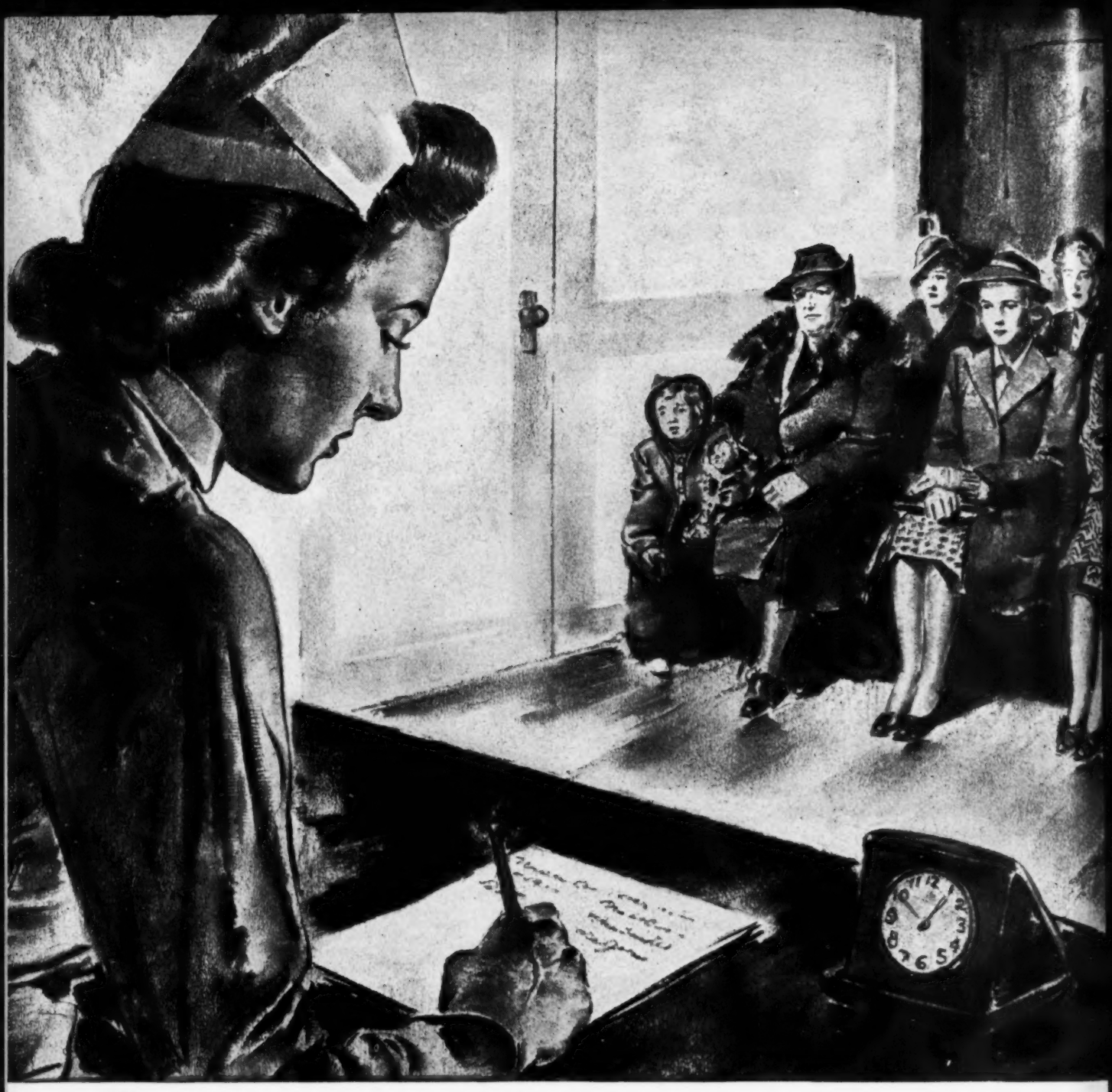
THE setting up of demonstration clinics in Connecticut factories, which would study the reaction of workers to their jobs and observe conditions tending to produce certain illnesses or accidents was forecast by DR. ARTHUR B. LANDRY, of Hartford, chairman of the Committee on Industrial Health of the Connecticut State Medical Society. DR. LANDRY spoke at the twelfth and final lecture on Industrial Health and Medicine held at the Yale School of Medicine for Connecticut doctors. About 70 physicians have been attending the weekly sessions conducted by nationally prominent health authorities in the hope of cutting down illness and accidents in state war plants. "The Committee on Industrial Health of the Connecticut State Medical Society contemplates the establishment of demonstration clinics under the direction of plant physicians," said DR. LANDRY in his address. "These clinics would be carried on where there is opportunity to see how people react to certain jobs and observe the factory conditions that tend to produce certain illnesses or accidents. One of our industrial physicians has already expressed the belief that management would welcome such clinical demonstrations, and that he himself would be glad of the opportunity to conduct clinics in industrial medicine. It might be possible in the future for recent graduates in medicine to serve an internship, so to speak, in our larger factories. The advantage of this form of post-graduate education in industrial medicine is obvious."

—*New Haven, Conn., Register.*

Broadening Concepts

"WE DON'T regulate; we educate," says DR. MILTON H. KRONENBERG (chief of the Division of Industrial Hygiene, Illinois Department of Public Health), explaining that neither he nor any of his staff of 10 doctors, engineers, and chemists has power to discipline an employer who doesn't take the division's advice, which may have something to do with the fact that the advice is accepted and followed in 95% of the cases where it is given. Sometimes the employer is advised to change his ventilating or exhaust system because the fumes or vapors from some new process are causing illness among his workers. Sometimes he improves the lighting. Sometimes the dust from his plant is collected and

—*Continued to page 125.*



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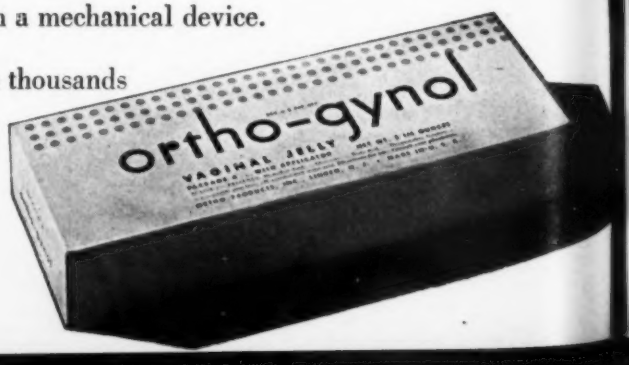

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